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A STATISTICAL STUDY OF MEASLES.

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Measles, from the time of its recognition as a distinct form of disease, has been considered relatively harmless by the great majority of the laity and by not a few of the medical profession. This belief, still shared by so many in all walks of life, is almost incredible in view of the long history and wide extent of the ravages of measles, not merely in the form of a large mortality but also in the form of non-fatal, but very numerous and serious physical impairments, directly chargeable to this disease. From the time of the Middle Ages,* at least, measles has levied a heavy toll on the populations of such civilized countries as have kept any records of the causes of death. Just what the extent of this mortality was in the early centuries can never be known, as the records are too uncertain and fragmentary for its determination. We do, however, have authentic records of great epidemics of measles in England and Scotland from the early part of the seventeenth century, and after Sydenham's description of the London epidemics of 1670 and 1674 there remains no doubt of the more or less continuous and wide havoc wrought in Great Britain and Europe by this particular form of eruptive fever. Epidemics of measles were frequent, widespread and fatal throughout the eighteenth century, and ever and increasingly so throughout the nineteenth century.

Measles is the one sickness to which we are all most susceptible, unless immunized by a previous attack and, as a corollary to this proposition, it is the one ailment from which fewest of us escape. The most reliable statistics show that from 1 to 6, or more, per cent. of all cases of measles terminate fatally. This percentage varies greatly with the circumstances of time and place, but particularly according to the age of the persons

* See "Two Hundred and Fifty Years of Smallpox in London," by William A. Guy, Journal of the Statistical Society, September, 1882, Vol. 45, p. 409.

attacked, the economic and social condition in which they live, and the general state of their health. The proportion of fatal cases is almost uniformly higher, for illustration, in patients of ages under one year of age, and remains high in the second and third years of life, after which the percentage of fatal cases falls rapidly, until by age fifteen it is almost negligible and remains so throughout adult life, under any but extraordinary circumstances. Again, over-crowding usually means a higher attack-rate from measles and also a higher case-fatality ratio. Close segregation of population in cities, in schools, in other institutions, in recruiting stations, in camps, or elsewhere favors the rapid spread of measles' contagion when once an affected person comes in contact with those susceptible to this morbid poison. In Glasgow, Scotland, a careful investigation revealed the fact that the attack-rate of measles among infants and young children was ten times higher in families living in one-room tenements than in families living in tenements of four or more rooms.* In Aberdeen, Scotland, statistics for the general population covering a ten-year period disclosed the fact that the case-fatality ratio of measles in that city was eight times higher in one-room tenements than in those of four or more rooms.† The experiences of Glasgow, London, and other localities where similar statistics have been compiled, yield similar results. Finally, that the health condition of the person attacked is a factor of great importance in the effect which measles produces, is evident from the unanimous opinions which have been recorded by hundreds of qualified observers.

Mortality from Measles. The most reliable international mortality statistics show that, on an average, in the countries of the temperate zones more than 1 per cent. of all the deaths are caused by measles. This statement is based upon statistics of twenty-two countries, covering the five-year period, 1906 to 1910. The percentage which measles formed of all deaths in these countries averaged, to be exact, one and one-eighth. That this is a fair average is evident from the fact that it is derived from an aggregate mortality from all causes of 32,626,651 and an aggregate of 366,262 deaths from measles. The percentage of the total mortality, chargeable to measles, varied considerably in the different countries for which the facts were available, or from 0.23 per cent. in Australasia and 0.28 per cent. in Japan, to 2.18 per cent. in Scotland, 2.14 per cent. in Belgium, and 1.98 per cent. in England and Wales. Of the twenty-two countries in the temperate zones for which the data are available, one-half showed percentages under 1.0, and one-half percentages above 1.0.

In the registration area of the United States the percentage which measles contributed to the total mortality during 1906 to 1910 was 0.71. Other

* Report of the Medical Officer of Health of the city of Glasgow, 1908, p. 99.
† Report of the Medical Officer of Health of the city of Aberdeen, 1904, p. 48.

countries with similar percentages were Switzerland, with 0.73 per cent.; Roumania, with 0.62 per cent.; Iceland, with 0.83 per cent.; and the cities of Denmark with 0.78 per cent. Other countries with relatively high percentages were Hungary, with 1.77; the Netherlands and Spain, each with 1.59; Chile, with 1.54; Austria, with 1.48, and Italy, with 1.41.

Whether or not the average contribution of measles to the total mortality is as large in the non-temperate as in the temperate zones, it is impossible to state with certainty, for the quantity and quality of the vital statistics in most of the countries of the tropical and of the frigid zones are too incomplete and unreliable to warrant a final conclusion. More or less fragmentary data, however, for certain countries, such as Cuba, Jamaica and Ceylon, and for various of the larger cities of the tropics, such as Mexico City, Mexico; Havana, Cuba; Rio de Janeiro, Brazil; Cairo and Alexandria, Egypt; Calcutta and Rangoon, India; and Manila, Philippine Islands, furnish sufficient proof that the virus of measles is capable of diffusing itself quite as readily in hot as in cool or temperate climates. So, too, the statistics of the cold temperate countries and the occasional outbreaks of measles in the Faroe Islands, Iceland and Alaska prove, conclusively, that the Arctic Circle is not a bar to the spread of measles.

From a careful study of the mortality from measles it appears to be reasonably certain that this infection is today one of the most ubiquitous with which man is afflicted. Its geographical distribution appears to be world-wide and all races and classes of men are apparently susceptible to its morbid virus.

As a partial basis for this paper, the mortality statistics, so far as they are available, have been compiled for all the principal countries of the world, for one hundred of the larger cities of the United States, and for more than fifty representative large cities located in various other countries throughout the world.* For this general comparison the death-rates have been uniformly calculated on the basis of 100,000 population of all ages. Although the more exact method would have been to calculate the death-rates with distinction of age, that method is impossible in any such wide comparison as is here attempted, for the reason that the necessary information in many cases is not available in such detail.

In the various countries of the world for which fairly reliable statistics are available for the five-year period, 1906 to 1910, the average annual death-rate from measles has varied from 48.4 per 100,000 population in Chile and 44.3 in Hungary, to 2.4 in Australasia, 3.4 in New Zealand and 6.3 in both Jamaica and Sweden. Other countries with relatively high average annual death-rates were Spain, 38.5; Scotland, 35.2; Belgium,

*A set of five charts in black and white, illustrative of the morbidity and mortality statistics of measles, may be had upon application to the author.

35.0; Austria, 33.2; Italy, 29.7; and England and Wales with a death-rate of 29.1. The average annual death-rate from measles in the registration area of the United States during 1906 to 1910 was 10.8 per 100,000 total population. The death-rate from measles in the United States was only about one-half that in the twenty-four other countries of the world combined, or 10.8 as against 20.5 for the remainder of the world for which statistics are available. It is interesting in this connection to note that in the registration area of the United States, during the twelve years from 1900 to 1911, 50,000 deaths from measles were recorded, and on the assumption that approximately the same death-rate prevailed in the non-registration area, over 100,000 deaths were caused by measles in the continental United States during the twelve-year period, 1900 to 1911.

The death-rates from measles in one hundred large cities of the United States during a twelve-year period, 1900 to 1911, show a great variation not only as between cities but from year to year in each of the respective cities. The annual death-rates from measles per 100,000 population in these one hundred cities have ranged from 85.7 in Covington, Ky., in 1901 and 85.2 in Schenectady, N. Y., in 1900, to zero one or more times in 62 cities, and 158 times altogether out of the 1,200 instances recorded in the table. The average death-rate during 1900 to 1911 for all registration cities in the registration area was 11.1 and this rate was equalled or exceeded 379 times out of the 1,200 instances tabulated; and it was exceeded one or more times in 97 of the 100 cities, the only exceptions being Portland, Me., Portland, Ore., and Spokane, Wash. Pittsburgh, Pa., had the highest average death-rate from measles during 1900 to 1911, or 26.5 per 100,000 population; and Portland, Me., had the lowest average rate, or 3.3. I may add that Pittsburgh has just experienced another epidemic, and beginning with the week ending September 7, 1912, and up to and including the week ending August 2, 1913, a period of 48 weeks, there were 10,117 cases of measles reported in that city, with 186 deaths.

The periodicity in the death-rates from measles in American cities illustrates the fairly well-known fact that in large urban centers of population almost everywhere throughout the world, measles is almost constantly present, and an epidemic generally recurs just as soon as the population under five years of age is surcharged with non-immune persons by the addition, through births, of one or two annual crops of children. Careful observations have disclosed the apparent fact that when many more than 30 per cent. of the youthful population in a densely crowded area are non-immune, an outbreak of measles is almost certain to occur. Observations extending over long periods of time and embracing wide areas have taught us that any apparent regularities in the recurrence of epidemics of measles in any given locality are probably dependent solely

on two factors, the time of importation of the morbid poison, and the number of persons susceptible to it.*

In fifty representative great cities of the world other than those in the United States, the death-rates from measles in recent years have varied even more widely than in the urban centers of this country. During the years of the period beginning with 1900 for which the statistics are available, the average annual death-rates in these cities have ranged from 147.4 in Cairo, Egypt, and 90.8 in Alexandria, Egypt, to 3.2 in Sydney, New South Wales, and 1.1 in Manila, Philippine Islands.

The mortality statistics of American and foreign cities illustrate three facts: first, that epidemics of measles are relatively numerous; second, that measles is apparently present, to some extent at least, throughout those parts of the world for which we have reliable or approximately accurate information; and, third, that there are great variations in the death-rates from measles, both geographically and historically.

The history of the many disastrous epidemics of measles in the urban centers of the world and among savage and semi-civilized tribes and peoples is one of the most interesting chapters in historical pathology. Enough has already been said of the epidemics in urban centers, but brief mention may be made of a few of the more notable epidemics of the other character. The virus of measles was imported into the Faroe Islands in 1846, and it is reported that the resulting epidemic affected three fourths of the total population. In 1874 measles was imported into the Fiji Islands, and the havoc wrought among the natives was frightful, it being reported that from one fourth to one fifth of the total population, or some 20,000 of the natives, succumbed to the disease. History records just as serious epidemics elsewhere among uncivilized peoples when the virus of measles has found them unprotected by previous attack. But we need not go far back in history to witness the effects of measles upon ignorant, superstitious peoples who have few or no qualified medical advisers. In Tutuila, one of the islands of American Samoa, an epidemic of measles occurred as recently as 1911, causing at least 219 deaths by July 23 of that year, and the mortality in some villages was reported to be nearly 10 per cent. of the total population. And yet this disease is today considered comparatively harmless by the majority of the laity in this and many other countries. The natives of the South Pacific Islands, however, have a wholesome respect for measles, which they dread more than any other quarantinable disease, not excepting even the plague, beri-beri, smallpox or yellow fever. There are many recent instances of epidemics of measles among Indians in schools, in camps, and on reservations in the United States and Canada. The disease is often quite exceptionally fatal, particularly where, as is so often true, the sanitary and hygienic conditions

* Hirsch: Handbook of Geographical and Historical Pathology, Vol. 1, p. 161.

are unsatisfactory, and a large proportion of the population attacked are in poor general health. Measles, as a rule, runs a fatal course when its victims are tuberculous, and nowhere is this better illustrated than in the detailed accounts of measles among the Indians as returned in the annual reports of the United States Commissioner of Indian Affairs and in the annual reports of the Department of Indian Affairs of Canada.

Measles and Race. Clemow, in his Geography of Disease, states that "all races are susceptible to it [measles], and it has been shown that it is just as capable of attacking the Chinaman, the Hindu, and the Negro as the European. It appears on the whole, however, to be decidedly less common in the African negro than in most races."* Hirsch, also, in his Handbook of Geographical and Historical Pathology, states that the susceptibility to the virus of measles is "uniformly shared by the whole of mankind, of whatever *races* or *nationalities*. And if," he goes on to assert "among the colored peoples, measles puts on its severest forms and leads to disastrous results exceptionally often, the reason of that does not lie in their physiological peculiarities, but mainly in the unfavorable hygienic conditions amidst which they live."†

ATTACK RATE FROM MEASLES BY COLOR AND AGE, WASHINGTON, D. C.,
1908–1912.

Ages.	White.			Colored.		
	Population.	Cases.	Attack rate per 10,000 population.	Population.	Cases.	Attack rate per 10,000 population.
Under 1	20,125	347	172.4	7,320	108	147.5
1–4	76,680	3,392	442.4	29,220	763	261.1
5–9	90,545	4,766	526.4	36,015	1,080	299.9
10–19	184,410	1,252	67.9	79,395	368	46.4
20–over	805,085	671	8.3	320,375	220	6.9
All ages ..	1,180,640‡	10,428	88.3	474,705‡	2,539	53.4

The statistics of measles certainly show that all races are susceptible to this disease, but, it is doubtful if there is yet sufficient proof to warrant the assertion that all races and nationalities are equally susceptible to it. Recent statistics for various cities of this country seem to bear out the statement by Clemow that measles is "decidedly less common in the African negro than in most races." Statistics of four American cities give an average annual attack-rate from measles of 89.0 per 10,000 of white popu-

* Clemow: The Geography of Disease, p. 280.
† Hirsch: Handbook of Geographical and Historical Pathology, Vol. 1, p. 170.
‡ Includes population of ages not stated.

lation, as against a rate of only 41.1 for the negro, or less than one-half that for the whites.* In Washington, D. C., where the cases have been reported with distinction of color and age since April 9, 1907, the figures for the five years, 1908 to 1912, show that the attack rate was highest for the white population at all ages. These figures are so interesting that they are presented in detail in the table on page 294.

Although the attack rate seems to be lower among negroes than among the whites, there is no certainty that the death-rate is more favorable among the negroes, for the case-fatality ratio is almost invariably higher among negroes than among the whites in the same localities. In the statistics for Washington, D. C., the case-fatality ratios are shown to be higher for the negroes than for the whites at ages under one and at ages 1 to 4. The figures in detail are presented in the following table:

CASE FATALITY FROM MEASLES BY COLOR AND AGE, WASHINGTON, D. C., 1908–1912.

Ages.	White.			Colored.		
	Cases.	Deaths.	Fatality rate per 1,000 cases.	Cases.	Deaths.	Fatality rate per 1,000 cases.
Under 1....	347	12	34.6	108	5	46.3
1–4.....	3,392	34	10.0	763	15	19.7
5–9.....	4,766	1	0.2	1,080	1	0.9
10–19.....	1,252	2	1.6	368	—	—
20–over	671	2	3.0	220	—	—
All ages ..	10,428	51	4.9	2,539	21	8.3

The comparative death-rates from measles show that in some cities the negroes have experienced a higher mortality than the whites, and in other cities the reverse has been true. The facts in detail are presented in the table on page 296.

From this table it appears that the average annual death-rate from measles per 100,000 population, all ages, was higher among the negroes than among the whites in Washington, Richmond and Memphis, while in New Orleans and Savannah the average death-rates of the whites have been higher than for the colored.

In Havana, Cuba, during the five years 1904 to 1908, the white death-rate from measles was higher than for the colored every year, except 1905, and the average annual death-rate was 11.8 per 100,000 population for

*It is quite probable that the white cases are more fully reported than are the colored cases.

MORTALITY FROM MEASLES, ALL AGES, IN FIVE AMERICAN CITIES, WITH DISTINCTION OF COLOR, 1902–1911.

(Rates per million population.)

Cities.	White.			Colored.		
	Population.	Deaths.	Rate.	Population.	Deaths.	Rate.
Washington, D. C.	2,205,182	103	46.7	922,275	60	65.1
New Orleans	2,352,420	201	85.4	856,427	38	44.4
Richmond	710,502	62	87.3	416,747	39	93.6
Savannah	297,965	12	40.1	314,805	8	25.4
Memphis	694,165	20	28.8	516,125	17	32.9
Total	6,260,234	398	64.1	3,026,379	162	53.5

the whites, against 7.9 for the colored. In Cuba, as a whole, during the four years, 1908 to 1911, the average death-rates were 4.6 for the white population and 3.3 for the colored population.

That the American Indian is highly susceptible to measles has long been attested by the frequent and often quite exceptionally fatal outbreaks of this disease among the various tribes and in various localities in the United States, Canada and elsewhere.

During the period 1888 to 1893 in an aggregate agency population in the United States of 852,679 there were 6,330 cases of measles reported by the agency physicians. This gives an average annual case or attack rate of 74.2 per 10,000 population. This rate is, so far as we are able to judge, fully as high as the average attack rate among the white urban population of this country. The corresponding death-rate among these Indians averaged 44.5 per 100,000 population, and the case-fatality ratio was 53.8 deaths to every 1,000 cases. These facts would seem to warrant the conclusion that the American Indian is quite as highly susceptible to measles as his white brother, and the history of the numerous epidemics among them is replete with instances in which a very large percentage of the total population of the tribe, or agency, have been attacked by this disease, and often with quite exceptionally disastrous results.

That the negro and the American Indian are susceptible to measles and suffer a high mortality from the disease is, therefore, quite evident, but more and better statistics are needed before the relative degree of susceptibility of these races at the various age periods can be accurately determined.

In Manila, during the period 1903 to 1912, there were 23 deaths of Filipinos officially reported as due to measles. Of this number 14 were

reported during 1912. This limited experience proves that the Filipino is by no means immune to measles. That the natives of the various South Pacific Islands are highly susceptible to measles has been proven at different times by widespread and disastrous epidemics. Reliable statistics for Japan and various cities of that empire demonstrates that the Japanese are probably quite as susceptible to measles as the Caucasian races, and what is true of the Japanese appears, from fragmentary data, to be true also of the Chinese.

Sex and Measles. It is doubtful if there is any other disease that shows less sex preference either in attack incidence or mortality-rate than does measles. Any sex differences which have thus far been revealed in the statistics of this disease seem to have been accidental rather than persistent. In the statistics for Aberdeen, Scotland, 1883 to 1902, the average annual attack rate per 1,000 of population, with distinction of sex and age, was as follows:

Age.	Males.	Females.	Age.	Males.	Females.
Under 1	42.2	45.4	9	10.9	12.5
1	84.2	87.6	10	6.4	7.1
2	80.9	91.1	11	4.2	4.6
3	73.2	86.1	12	3.4	4.7
4	75.6	75.2	13	2.5	3.4
5	86.7	85.9	14	2.2	2.9
6	74.3	76.2	15–24	1.4	1.3
7	44.9	49.6	25–59	.33	.33
8	20.9	20.9	60 and over	.07	.07

The case-fatality ratio from measles in Aberdeen, 1883–1902, by sex and with distinction of age is shown on page 298.

In Massachusetts the average annual death-rate from measles during the fifty years, 1863 to 1912, was, for males, 44.52 per 100,000 male population, ages under ten, and for females the rate was 42.75. The statistics by five-year periods, however, show that the rates were higher for females than for males during 1873 to 1877, 1883 to 1887, and 1893 to 1897. Other more or less fragmentary data seem to confirm the conclusion that measles manifests no decided sex preference, either as a disease or as a cause of death, which cannot be accounted for on grounds other than physiological differences.

Age and Measles. In the registration area of the United States during the twelve years, 1900 to 1911, only 6 per cent. of all the deaths from measles were at ages twenty and over. Nearly 82 per cent. were at ages under five; 8.4 per cent. were at ages five to nine, and 3.7 per cent. were at ages ten to nineteen. The summary of the mortality by ages is given in the table at the bottom of page 298.

CASE FATALITY FROM MEASLES IN ABERDEEN, SCOTLAND, 1883–1902, WITH DISTINCTION OF SEX AND AGE.

Age.	Males.			Females.		
	Cases.	Deaths.	Deaths per 100 cases.	Cases.	Deaths.	Deaths per 100 cases.
1–3 mos.	115	13	11.3	129	6	4.7
4–6 "	358	36	10.1	307	28	9.1
7–9 "	669	100	14.9	594	86	14.5
10–12 "	417	77	18.5	445	80	18.0
Under 1 year	1,559	226	14.5	1,475	200	13.6
1 year	2,643	288	10.9	2,579	238	9.2
2 "	2,651	96	3.6	2,544	82	3.2
3 "	2,434	37	1.5	2,619	45	1.7
4 "	2,439	23	0.9	2,347	20	0.9
5 "	2,758	18	0.7	2,594	17	0.7
6 "	2,400	9	0.4	2,228	12	0.5
7 "	1,340	4	0.3	1,478	10	0.7
8 "	624	2	0.3	634	3	0.5
9 "	321	1	0.3	351	3	0.9
10 "	194	1	0.5	212	—	—
11 and over	875	4	0.5	1,025	7	0.7
All ages	20,288	709	3.5	20,086	637	3.2

MORTALITY FROM MEASLES, WITH DISTINCTION OF AGE, UNITED STATES REGISTRATION AREA, 1900–1911.

Age.	Number of deaths.	Per cent. of total at specified ages.
Under 5	40,931	81.9
5–9	4,213	8.4
10–19	1,830	3.7
20 and over	3,028	6.0
Total	50,002	100.0

In countries or cities where measles have been long prevalent and the susceptible persons are practically limited to the infants and youths the age distribution of the deaths from measles is quite different from that in the registration area of the United States. In England and Wales, for illustration, about 93 per cent. of all the deaths from measles occur at ages under five.*

* Forty-first Annual Report of the Local Government Board, England, 1911–12, p. XXV.

Various investigations into the mortality-rate of measles by age and on the basis of population indicate that the second year of life is the age period when an attack of measles is most apt to prove fatal. The following table represents with approximate accuracy the death-rate from measles in the registration area of the United States with distinction of age:

MORTALITY FROM MEASLES, BY AGE, REGISTRATION AREA OF THE UNITED STATES, 1909–1911.

Age.	Population.†	Deaths.	Rate per 100,000 population specified age.	Age.	Population.	Deaths.	Rate per 100,000 population specified age.
Under 1.	3,956,760	4,106	103.8	20–29.....	30,666,203	398	1.3
1.....	3,538,256	5,498	155.4	30–39.....	23,942,597	301	1.3
2.....	3,880,669	2,504	64.5	40–49.....	17,383,981	205	1.2
3.....	3,861,646	1,222	31.6	50–59.....	11,807,308	98	0.8
4.....	3,785,554	737	19.5	60–69.....	7,051,587	75	1.1
5–9.....	17,382,981	1,464	8.4	70–over...	3,935,769	70	1.8
10–19...	32,470,097	697	2.1				
				All ages...	163,990,391‡	17,380	10.6

From these statistics it is clear that in this country the death-rate from measles is highest in the second year of life; it is comparatively high also in the first year of life, particularly in the second half; in the third year of life the death-rate is less than one-half that in the second year; in the fourth year it is only one-half that in the third; and from the fifth year of life the mortality-rate declines rapidly until by age twenty the rate is only about 1 in every 100,000 of population.

In England and Wales, during the five years, 1906 to 1910, the average death-rate from measles has been as follows by months during the first year of life as given in table on next page.

These statistics indicate that the mortality from measles in the first year of life is fully twice as high in England and Wales as in the registration area of the United States.

On the basis of survivors, the average death-rates from measles from the second to the fifth years of life in England and Wales, 1906 to 1910, were as shown in second table on page 300.

In England and Wales, as in the United States, the mortality from measles in the second year of life is fully twice as high as in the first year of life, and is more than twice as high as in the third year of life. The mortality-rate declines rapidly from the second year and in England and

† Estimated from ages of population in Continental U. S. Census of 1910.

‡ Includes population of ages not stated.

AVERAGE NUMBER OF DEATHS FROM MEASLES TO EVERY 100,000 BIRTHS, ENGLAND AND WALES, 1906–1910.

Age.	Rate.	Age.	Rate.
Under 1 month	2.0	7th month of life	16.2
2d month of life	2.6	8th " " "	26.0
3d " " "	2.2	9th " " "	35.0
4th " " "	2.0	10th " " "	42.2
5th " " "	4.6	11th " " "	47.8
6th " " "	9.2	12th " " "	53.4
Total under one year	243.2		

AVERAGE NUMBER OF DEATHS FROM MEASLES PER 100,000 SURVIVORS, ENGLAND AND WALES, 1906–1910.

Age.	Rate.
2d year of life	508.2
3d " " "	210.8
4th " " "	113.0
5th " " "	70.4

Wales the death-rate in the fifth year of life is less than one seventh of that in the second year. In the United States this ratio was one-eightht or the rate was 19.5 per 100,000 in the fifth as against a rate of 155.4 in the second year of life.

There is evidence to support the theory that as population becomes more and more segregated the mortality from measles is shifted from the higher to the lower ages, and particularly upon ages under three. As children become more and more segregated in schools, and as measles, in greater degree than scarlet fever or diphtheria, spreads in the home to the children of pre-school ages if it be introduced into the home by a school-attending child, there is a shifting of attack incidence and mortality to the pre-school ages.*

The case-fatality ratio of measles is highest in the second year of life, but it is almost as high in the first year. The ratio in the third year of life is less than one-third that in the second year, and in the fourth year it is only one-eighth that in the second year of life.

These statistics for Glasgow are corroborated by similar data for Aberdeen, London, and elsewhere.

* Report, Public Health Commissioner, London County Council, 1905, p. 30.

CASE FATALITY IN RELATION TO AGES, GLASGOW, SCOTLAND, 1908.†

Age.	Cases.	Deaths.	Deaths per 100 cases.
Under 1 year	1,575	256	16.2
1–2 years	2,690	509	18.9
2–3 "	3,334	178	5.3
3–4 "	3,091	76	2.4
4–5 "	2,956	40	1.3
5–15 "	8,026	56	0.7
	21,672	1,115	5.1

Before leaving the subject of age in its relation to measles it is of interest to note that measles forms an important proportion of the total mortality at ages under ten. The details for the registration area of the United States for the two years, 1910 and 1911, were as follows:

MORTALITY FROM MEASLES IN THE UNITED STATES REGISTRATION AREA, 1910–1911.

Ages.	Deaths from all causes.	Deaths from measles.	Ratio per 1,000.
Under 6 mos.	231,501	769	3.3
6–11 mos.	72,194	2,090	28.9
1 year	64,442	3,788	58.8
2 years	28,307	1,809	63.9
3 "	17,736	903	50.9
4 "	12,621	543	43.0
5–9 "	36,055	1,089	30.2
10–19 years	64,999	567	8.7
20–29 "	129,512	326	2.5
30–39 "	141,382	254	1.8
40–49 "	149,914	175	1.2
50–over	693,949	202	0.3
All ages	1,644,696	12,520	7.6

From these statistics it appears that in the third year of life 6.4 per cent. of all the deaths were caused by measles; in the second year, 5.9 per cent., and in the fourth year, 5.1 per cent., while at ages over ten the deaths from measles did not cause as much as 1 per cent. of the total mortality.

Urban vs. *Rural Mortality from Measles.* Other things equal, segregated populations, whether in urban centers, in armies, or elsewhere, favor the

† Report, Medical Officer of Health of the City of Glasgow, 1908. p. 96.

spread of measles and a comparatively high mortality therefrom. This fact is illustrated in a most convincing way in the mortality statistics of the registration area of the United States, where distinction is made of the urban and rural areas. The statistics are presented for the twelve-year period, 1900 to 1911, in the following table:

COMPARATIVE MORTALITY FROM MEASLES IN RURAL AND URBAN AREAS, REGISTRATION STATES, UNITED STATES, 1900–1911.

Years.	Urban.			Rural.		
	Population.	Deaths.	Rates per 100,000 population.	Population.	Deaths.	Rates per 100,000 population.
1900–1905	69,498,082	7,929	11.4	55,487,115	4,019	7.2
1906–1911	132,949,400	16,626	12.5	120,478,830	10,928	9.1
1900–1911	202,447,482	24,555	12.1	175,965,945	14,947	8.5

From these data it is shown that in the registration urban area of the United States the average mortality from measles during the twelve years was 12.1 per 100,000 of population, all ages, against an average rate of 8.5 for the registration rural area. The average urban death-rate from measles was, therefore, 42.5 per cent. higher than the average rural death-rate. The different age distribution of the population in the city and country districts would affect these mortality rates somewhat but in a way to increase rather than diminish the difference in favor of the country. The percentage of the total urban population at ages under ten was only 18.8 in 1910, as against 25.1 for the rural population, and as measles is preëminently a disease of infancy and early youth, other things equal, we would expect a higher attack incidence and mortality from this disease in the country districts than in the urban areas. The facts show that segregation of population in the cities of the United States, as elsewhere throughout the world, is one of the most important factors favoring the diffusion of measles.*

The following statistics seem to indicate that in this country, as is also probably the fact elsewhere throughout the world, the proportion of the total deaths from measles which falls upon children under ten is considerably higher in the large cities than in the small cities and rural districts.

* For English conditions, see Thirty-ninth Annual Report of the Local Government Board, 1909–10, App. X, A., No. 1, pp. 1-2, Report of Medical Officer.

MORTALITY FROM MEASLES IN THE REGISTRATION STATES OF THE UNITED STATES, 1909.

Ages.	Registration states.		Cities with over 100,000 population.		Remainder of registration states.	
	Number of deaths.	Per cent. distribution by age.	Number of deaths.	Per cent. distribution by age.	Number of deaths.	Per cent. distribution by age.
Under 5	3,791	85.7	1,783	92.8	2,008	80.3
5–9	334	7.6	103	5.4	231	9.2
Under 10 . . .	4,125	93.3	1,886	98.2	2,239	89.5
All ages . .	4,423	100.0	1,922	100.0	2,501	100.0

These statistics show very clearly that as our population becomes more and more segregated in cities there is a shifting of the mortality from measles from the higher to the lower ages. This is due primarily to two factors, first, the greater liability in urban centers to attack from measles at an early age, and, second, the universally higher case-fatality from this disease at the early ages. These are probably the more powerful factors which coöperate to bring about the comparatively high proportion in cities of the total deaths from measles which occur at ages under five and under ten, but there are other contributory factors, such as housing, overcrowding, and other socio-economic conditions which are apt to press harder in the cities than in villages and rural districts.

The medical experience of our Civil War is replete with proof that a large proportion of the rural population at that time attained to adult ages without having had measles. Frequently the majority of the soldiers in a regiment raised in the rural districts would be attacked by measles, the exempt often being only those who had had a previous attack.* Many of the companies recruited from the rural districts, both Union and Confederate, were so seriously crippled by measles that temporary disbandment was found necessary. This drastic action was seldom, if ever, resorted to in companies or regiments recruited from cities.

What was true at the time of the Civil War is still true, but not to the same extent, for measles is now more widely diffused, even in the rural districts, than in the fifties † and sixties of the nineteenth century. In

* Outlines of the Chief Camp Diseases of the U. S. Armies; by Joseph J. Woodward, M. D., Philadelphia, 1863; pp. 268, 277. Also, U. S. Sanitary Commission Memoirs; edited by Austin Flint, M. D., New York, 1867; pp. 13, 219, 228, 230, 231.

† Diseases of the Interior Valley of North America, by Daniel Drake, M. D., Philadelphia, 1854, Vol. II, p. 586.

1911, for illustration, a serious outbreak of measles occurred among the United States troops stationed at Columbus Barracks, resulting in 1,101 cases and 25 deaths.* "Epidemics of this character still occur frequently at the large recruiting depots."†

Season and Measles. The statistics of the morbidity and mortality of measles show that, as a general rule, cases increase in number with the beginning of the cold season. This may or may not be due directly to temperature change, but a more plausible explanation would seem to be that, with the beginning of the colder season, children are more closely segregated in schools; ventilation is generally less adequate and other factors more or less dependent upon cold weather react to bring about more sick cases and more deaths from measles than occur in the summer months.

A careful study of the recorded cases of measles and the reported deaths from the same in New York City and Philadelphia by weeks for a seven-year period (1906–12) disclosed the fact that as the actual number of cases decrease the case fatality-ratio increases. This phenomenon was corroborated by the combined returns by weeks for fourteen large American cities during 1912, and it was also noted by Dr. Wilson when he made his investigation of the statistics of measles in Aberdeen, Scotland, during the twenty years, 1883 to 1902.

I am unable to do more than offer some suggestions as to why this is so. Possibly the cases are not so fully reported during the vacation period as during the school year; possibly the deaths, or a fair proportion of them, refer back to cases reported some weeks earlier; and possibly the higher case fatality is due to reduced general vitality coincident with the hot summer months. This latter explanation is in part confirmed by the industrial experience of The Prudential. An analysis of the primary complications in 190 fatal cases of measles which occurred in the months of July, August and September, showed that 9.5 per cent. of the total were digestive, against 1.9 per cent. during the other nine months of the year. On the other hand, during July, August and September, 65.3 per cent. of the total primary complications were of a respiratory character, against 80.7 per cent. during the other nine months of the year.

Increase or Decrease in Mortality from Measles. The question whether or not there has been a decrease in the mortality from measles admits of reasonable doubt. The crude death-rates for the various countries of the world show in most cases a decline, but when correction is made for age, this apparent decline is often almost, if not completely, offset by the decline in the birth-rate. In other words, in countries where the birth-rate is steadily declining, the proportion of the total population of ages under five steadily diminishes also, and it is at ages under five that this disease is most fatal.

* Report of the Surgeon-General, U. S. A., Washington, D. C., 1912, pp. 78, 79.
† Report of the Surgeon-General, U. S. A., Washington, D. C., 1911, p. 72.

In the registration area of the United States there has been an increase in the crude death-rate from measles, if comparison is made of the two six-year periods, 1900 to 1905, and 1906, to 1911, as the following summary statistics show:

MORTALITY FROM MEASLES IN THE REGISTRATION AREA OF THE UNITED STATES, 1900–1911.

(Rates per million population, all ages.)

Registration area.	1900–1905.			1906–1911.		
	Population.	Deaths.	Rate.	Population.	Deaths.	Rate.
Urban.....	69,498,082	7,929	11.4	132,949,400	16,626	12.5
Rural.....	55,487,115	4,019	7.2	120,478,830	10,928	9.1
Total.....	124,985,197	11,948	9.6	253,428,230	27,554	10.9

In the urban portion of the registration area the mortality from measles has increased from 11.5 during 100 to 1905 to 12.5 during 1906 to 1911, or 8.7 per cent.; the rural rate has increased from 7.2 to 9.2, or 27.8 per cent.; and the rate for the whole registration area has increased from 9.6 to 10.9 or 13.5 per cent. In the United States, therefore, it is quite probable that the death-rate from measles, if it could be calculated on the basis of population and deaths under five years of age, would show a much larger increase, for there is no question that the birth-rate has declined appreciably in this country in recent years.

In the state of Massachusetts it has been possible to calculate the death-rate from measles at ages under ten for a fifty-year period, 1863 to 1912, and the comparison of the average rates in the first and last decades of the period is presented in the table at the top of page 306, together with similar rates from scarlet fever, whooping-cough and diphtheria.

In Massachusetts there seems to have been a decline in the average death-rate from measles at ages under ten from 6.74 per 10,000 population of these ages during 1863 to 1872 to 3.43 during 1903 to 1912, or 49.1 per cent. The mortality in Massachusetts from measles at ages under ten by five-year periods is presented for a fifty-year period in the second table on page 306.

These statistics show that even in Massachusetts the mortality from measles has remained fairly constant since 1872, the average rate during 1908 to 1912 being very little lower than during 1873 to 1877. The quinquennial rates varied during the fifty years from 7.8 in 1868 to 1872 to 3.1 during 1893 to 1897.

COMPARATIVE MORTALITY FROM MEASLES, SCARLET FEVER, WHOOPING-COUGH, AND DIPHTHERIA AND CROUP, MASSACHUSETTS, 1863–1872, AND 1903–1912.

(Rates per 10,000 population, ages under ten.)

Causes of death.	1863–1872.		1903–1912.		Per cent. decrease.
	Number of deaths, ages under 10.	Rate.	Number of deaths, ages under 10.	Rate.	
Measles	1,986	6.74	2,017	3.43	49.1
Scarlet Fever	9,641	32.75	1,999	3.40	89.6
Whooping Cough	2,949	10.02	2,824	4.80	52.1
Diphtheria and Croup	9,291	21.56	6,127	10.41	67.0

Population, Ages under Ten: 1863–1872—2,943,520
1903–1912—5,884,654

MORTALITY FROM MEASLES, AGES UNDER TEN, MASSACHUSETTS, 1863–1912.

(Rates per 10,000 population, ages under ten.)

Period.	Population.	Number of deaths.	Rate per 10,000.
1863–1867	1,406,227	785	5.6
1868–1872	1,537,293	1,201	7.8
1873–1877	1,677,862	679	4.0
1878–1882	1,752,137	776	4.4
1883–1887	1,818,939	1,177	6.5
1888–1892	2,009,421	762	3.8
1893–1897	2,309,685	717	3.1
1898–1902	2,648,036	1,074	4.1
1903–1907	2,765,993	889	3.2
1908–1912	3,118,661	1,128	3.6

On the other hand, in several large cities of this country there seems to have been a very material reduction in the death-rate from measles during the last thirty years and a summary statistical statement is herewith presented of the mortality in ten cities for which the information is available by age. For the sake of brevity and because 92.1 per cent. of all the deaths from measles in these ten cities occurred at ages under five, this comparison is limited to that age period.

COMPARATIVE DEATH-RATES FROM MEASLES, IN TEN AMERICAN CITIES.

(The average annual death-rates per 10,000 population, ages under five, for 1883–1887, compared with the average rates for 1908–1912.)

Cities.	Death-rates per 10,000 population.		Change in rate.	
	1883–1887.	1908–1912.	Actual.	Per cent.
Boston	20.1	14.9	− 5.2	−25.9
Cleveland	14.9	6.9	− 8.0	−53.7
New Haven	18.4	8.5	− 9.9	−53.8
New York City	45.6	15.1	−30.5	−66.9
Philadelphia	13.0	11.4	− 1.6	−12.3
Providence	21.7	21.6	− 0.1	− 0.5
Reading	28.5	2.7	−25.8	−90.5
St. Louis	6.6	9.1	+ 2.5	+37.9
San Francisco	8.4	9.2	+ 0.8	+ 9.5
Washington, D. C.	18.7	3.9	−14.8	−79.1
Total	25.7	13.0	−12.7	−49.4

These statistics indicate that the mortality from measles has diminished considerably in certain cities during the last thirty years. In Providence, however, no appreciable change has taken place, and in *St. Louis* and *San Francisco* the rates have actually increased. The improvement in the rate has been most marked in Reading, Pa., where the death-rate from measles at ages under five decreased from 28.5 in 1883 to 1887 to 2.7 in 1908 to 1912, or 90.5 per cent. These facts are significant for they seem to prove that the mortality from measles can be materially reduced when efforts are wisely directed, and proper coöperation of health authorities, school authorities and the public generally is secured and a campaign of education is carried on with energy and persistence.

Control of Measles. Measles and whooping-cough are probably today, of all the widely diffused diseases, the least amenable to sanitary control. At any rate, these two infectious diseases have thus far been less subjected to control than any other of the equally important diseases of this class with which humanity is afflicted. In the case of measles there are several reasons to account for its being difficult to control. Among the more important of these are:

First. Incomplete knowledge of the identity and nature of its virus.

Second. The fact that it has an infectivity period of forty-eight hours or more previous to its eruptive appearance in an infected individual.

Third. The curious fact that it has always and almost everywhere been considered a mild and comparatively harmless disease by a large proportion of the population.

Fourth. Because it is so widely diffused, so highly contagious and so largely a disease of infancy and early youth.

Much remains to be learned of the character of the virus of measles, but the recent researches of Anderson and Goldberg indicate that even this morbid poison can be subjected to critical analysis which will yield valuable results. If, for illustration, it can be demonstrated conclusively that measles can be conveyed only by direct contact it will mean a tremendous saving of school attendance, for in that event a child of school age, immune by previous attack, need not be excluded from school when its brothers, sisters or other members of the family are ill with this disease.* If complete statistics could be had of school exclusions now required of children immune to measles, this statement would be greatly strengthened.

More statistics are needed to determine the infectivity period of measles. A most excellent recent study of this kind, based upon practical experience, has been made by Dr. E. C. Levy, health officer of Richmond, Va. His conclusion, based upon observations made during the Richmond epidemics of 1910 and 1912, seems to confirm absolutely those of other observers, namely, that measles is highly infectious at least four days previous to the appearance of the eruptive rash. This conclusion has also been confirmed by the Anderson and Goldberg laboratory investigations. This fact makes it highly important that known cases of measles be notified at the earliest possible moment in order that exposed susceptible persons may be isolated until it is definitely determined whether or not they have caught the disease. This follow-up method has been more effective than any other effort yet made to minimize the number of cases and also to minimize the mortality from existing cases.

Authorities have in the past been in disagreement as to the benefits of compulsory notification of measles but those opposed to notification have been so because of practical difficulties in the form of expense, lack of sufficiently large health department staffs, lack of hospital accommodation for isolation of patients, etc. Presumably, however, there is quite general agreement that notification of cases of measles must be a preliminary requirement, and a necessary part of any complete program for the better control of measles. The best modern practice seems to be that whereby coöperation is effected between parents, school teachers, medical inspectors of schools, visiting nurses and health departments. When such coöperation can be brought about the control of measles is very greatly facilitated by making it possible for the health authorities to get early information of the appearance of the disease in any given community.

* A new regulation of the Department of Health of New York City (1913) provides that children, and other members of the family who have had measles, may continue in school provided that quarantine at home is properly observed.

Having this early knowledge of the appearance of the disease, steps can at once be taken to guard against its spread by special instruction to the parents, by exclusion from schools of non-immune children who are suspected of having been infected, through warning notices to teachers, etc. In addition, and quite as important, it is possible for the health department to emphasize the necessity that the patient sick with measles shall get proper care and treatment, by pointing out to the parents the dangerous character of the disease due to its frequent and fatal complications and many serious after-effects.

The follow-up method has been found to be particularly effective by reason of the much-needed educational work which can thus be done where most urgently required, that is, at the points of infection. Not only can the ignorance of parents be largely overcome, but their interest can be aroused by emphasizing the grave danger of measles when proper safeguards are not thrown about the patient. One of the most serious obstacles in the way of sanitary control of measles is the indifference to it so widely manifest almost everywhere. This indifference is not only prevalent among the laity but it is frequently met with among the medical fraternity. In 1910 a health officer of a large city in this country made the following astonishing statement:

"There were no deaths from this disease and there were but a few cases. In this climate this disease seldom assumes a malignant form and probably strong, healthy children, under careful control, would do well to contract the disease to escape the malignancy of the disease in adult age." *

This misinformation is of a kind with that put forth in a popular way by a widely read physician-author, who, in a book entitled "Preventable Diseases," makes the amazing assertion that "Fortunately neither scarlet fever *nor measles* usually becomes acutely infectious until the rash appears." † Surely when doctors fail to realize the significance of the well-known facts relating to measles we cannot hope to accomplish the best preventive results without a vigorous and continuous campaign of education as a necessary accompaniment of any and all other measures.

* Reports of the City Officers of the City of Savannah, Ga., 1910, p. 215.

† "Preventable Diseases," by Woods Hutchinson, A. M., M. D., Houghton Mifflin Co., 1909, p. 257.

THE RESULT OF THE EXPERIMENTAL EMPLOYMENT OF HYPOCHLORITE TREATMENT TO A PORTION OF THE CHICAGO CITY WATER SUPPLY.

G. B. YOUNG,

Health Commissioner, Chicago, Illinois.

Read before the Section of Public Health Officials, American Public Health Association, Colorado Springs, September, 1913.

There are a good many communities in which there is a firmly held belief that whatever else is wrong their water supply is all right, or at least cannot be held responsible for any of the typhoid which may occur. The following notes are written as a warning to such communities that, while they may be justified in thinking their water supplies better than the average, they are not justified in asserting that with them water-borne typhoid is a negligible factor.

The rapid and progressive decline in the typhoid death-rate in Chicago during the years that have elapsed since the opening of the drainage canal permitted the progressive diversion from the lake of the city's sewage, a decline from 19.8 in 1900 to 10.8 in 1911, led to the general assumption that water-borne typhoid in Chicago had ceased to be of any moment.

The cribs supplying the southern part of the city were known to be occasionally subject to pollution from the Calumet River (see map), but as this pollution was considered to be dependent upon the direction of the wind and even then only important at times of flood, as in the early spring, and as the rate had rapidly declined in the southern quarter as well as elsewhere in the city, no particular importance was attributed to the matter.

The very great improvement in the milk supply and in general sanitary conditions was so unquestionably responsible for much of the decline in the typhoid rate that for several years practically no attention was given to the water as a persisting factor in the situation.

Roughly speaking, the water supply map of Chicago may be divided into four districts, as indicated on the accompanying map. There is a certain amount of mixing of water along the borders of the districts, but substantially the water supplied to each district is distinctly separate.

This made possible a study of the comparative incidence of typhoid in the various districts that strengthened the opinion of the writer that too little attention had been given to water-borne typhoid.

Even when allowance had been made for the differences in population in the various districts and for the occurrence in 1911 of a localized milk-borne (carrier) outbreak, the typhoid incidence in the southern districts was disproportionately large.

Undoubtedly there is more vacation typhoid in the first of these districts than in the third, but probably no more, if as much, as in the fourth, so it was clear that some factor was present in the first district that was either absent in the other three or at least of less importance.

The fact that the so-called Hyde Park district did not contain the most congested portions of the city made the figures all the more striking.

Early in the spring of 1912 arrangements were made by the Department of Public Works to try the effect of using hypochlorite at the cribs supplying the southern district.

There was some disposition on the part of the Finance Committee of the City Council to hesitate in authorizing the necessary expenditure because of fear that the hypochlorite might be tasted and the discovery of its use give rise to unfounded distrust of the general water supply.

Samples of treated and untreated water were, therefore, supplied for the consumption of the sub-committee in charge of the matter. The members could not tell one from the other, and decided to approve the experiment.

The introduction of the hypochlorite was begun at the Dunne crib on March 15, 1912, and at the Hyde Park crib on July 16, 1912, and, on account of the freezing of the solution in the temporary wooden tanks, was discontinued December 12, 1912.

The year 1912 was one of those known as "a good typhoid year," that is, a year in which the typhoid incidence was low in the country generally. Chicago was no exception, but a consideration of the following facts will show that the reduction in that city was due to something more than a seasonal factor.

The average increase of typhoid during the autumnal months of 1909–10–11 was as follows, by "autumnal increase" being meant the total increase for July—November inclusive, over February—June inclusive:

District.	Percent of autumnal increase—Av. 1909–10–11.
Dunne and 68th Street	131
4-Mile	65
Chicago Avenue	97
Lake View	107.7
Average increase for city	100.1

In 1912 one district, the 4-Mile crib or 14th Street district, showed a marked rise in the autumnal increase as compared with the average for the three previous years, viz., 102.7 per cent. increase in 1912 against 65 per cent., but the average increase for the three *untreated* districts as shown below was 14.7 per cent. less than the average for the whole city for the three previous years:

District.	Percent of autumnal increase—1912.
14th Street	102.7
Chicago Avenue	87
Lake View	66.7
Average for untreated districts	85.4

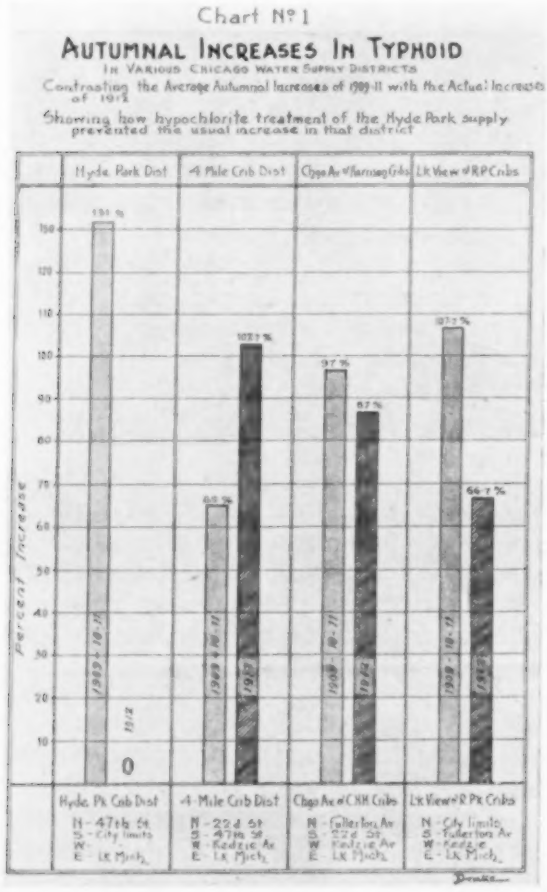


Chart No 1
AUTUMNAL INCREASES IN TYPHOID
IN VARIOUS CHICAGO WATER SUPPLY DISTRICTS
Contrasting the Average Autumnal Increases of 1909-11 with the Actual Increase of 1912
Showing how hypochlorite treatment of the Hyde Park supply prevented the usual increase in that district
Hyde Park Dist
4 Mile Crib Dist
Chgo Av & Harrison Cribs
Lk View & R P Cribs
Percent Increase
1909-10-11
1912
0
102.7%
87%
66.7%
Hyde Pk Crib Dist
N - 47th St
S - City limits
W -
E - Lk Mich.
4-Mile Crib Dist
N - 22d St
S - 47th St
W - Kedzie Av
E - Lk Mich.
Chgo Av & C&H Cribs
N - Fullerton Av
S - 22d St
W - Kedzie Av
E - Lk Mich.
Lk View & R Pk Cribs
N - City limits
S - Fullerton Av
W - Kedzie
E - Lk Mich.

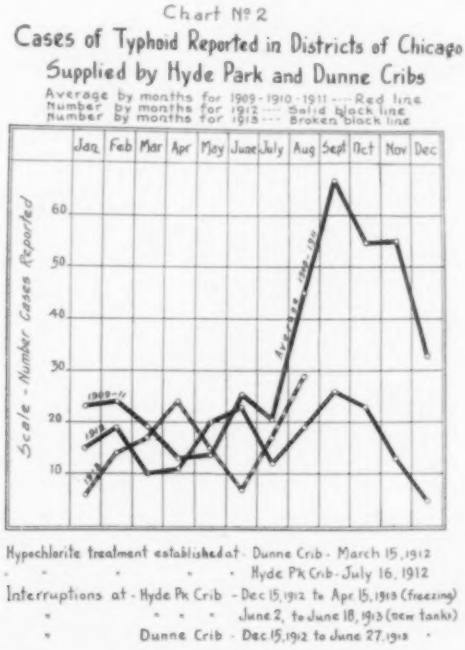
When, however, the figures for the district supplied with treated water are included we get a very different and a very significant result:

District.	Percent of autumnal increase—1912.
Dunne and 68th Street	0
4-Mile crib	102.7
Chicago Avenue	87
Lake View	66.7
Average for entire city	64.1

The two accompanying charts tell the story very plainly. No. 1 shows the average autumnal increase for each of the four districts for the years 1909–10–11, contrasted with the increases in the same districts for 1912. I do not see how any one studying this sheet can escape the conviction that water-borne typhoid in Chicago must still be reckoned with as a factor of considerable importance in determining the city's rate.

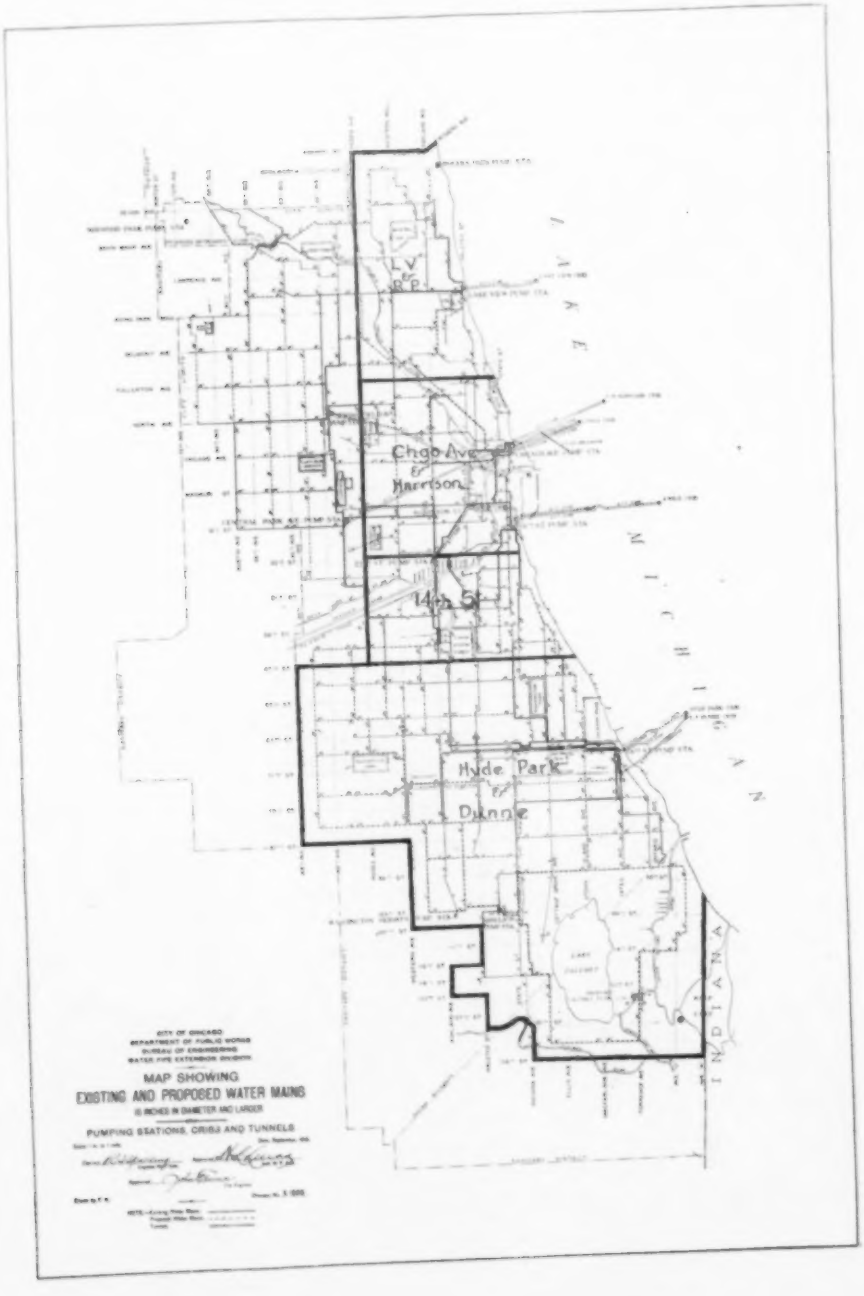
Chart No. 2 shows the curve for cases of typhoid fever in the Hyde Park (Dunne-68th Street cribs), (a) for the average for 1909–10–11; (b) for 1912; (c) for 1913.

In 1912 the death-rate for typhoid in Chicago was 7.5 per 100,000 as



against 10.8 for 1911, a reduction of 30.5 per cent. Many factors played a part, no doubt, in this reduction, but the figures and charts given in this paper show conclusively that the hypochlorite treatment was a large factor.

A word of explanation of the 1913 curve in Chart No. 2: The use of the hypochlorite was suspended December 15, 1912, as already explained. As soon as weather permitted, the temporary wooden tanks were replaced by concrete, but time had to be given for these to cure, and there were other delays so that the treatment was not resumed at the 68th Street crib until April 15, and at the Dunne crib until June 27, 1913. Moreover, it was suspended at the 68th Street crib from June 2 to 18 to permit the installation of a new mixing tank.


L V R P
Chgo Ave
&
Harrison
14th St
Hyde Park
&
Dunne
INDIANA
CITY OF CHICAGO
DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING
WATER PIPE EXTENSION DIVISION
MAP SHOWING
EXISTING AND PROPOSED WATER MAINS
12 INCHES IN DIAMETER AND LARGER
PUMPING STATIONS, CRIBS AND TUNNELS

It is interesting to note how the curve for 1913 was climbing the first three and a half months of 1913, and how sharply it declined for the two months after the 15th of April.

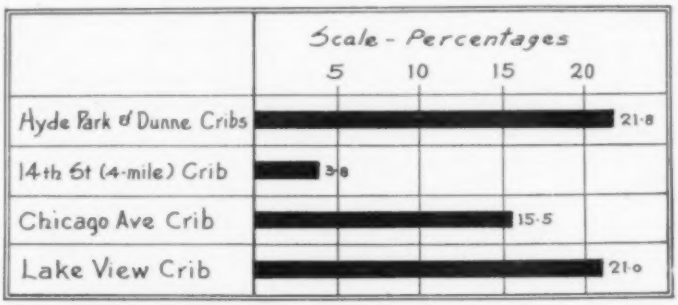
A study of the colon findings for 1912 in the untreated water of all four districts gave the result shown in Chart No. 3.

The Chicago Avenue district is probably the most important in the city from a typhoid standpoint because it embraces congested sections wherein the occurrence of one case is more apt to be followed by contact infection, but the present arrangement of the water tunnels made it impossible to use hypochlorite effectively. The first extension of the system was, there-

Chart No 3

Coli Findings in Chicago's Water Supply

Percent of Positive Findings



fore, procured for Lake View, and the treatment was begun there on the 15th of August, 1913.

The new Lake View pumping station is about complete, and this will do away with the use of the Rogers Park intake (see map) so that approximately 32 per cent. of the population will be getting treated water.

Of course, the figures given are based on cases reported and not on deaths, and so are open to some criticism, but as the deaths reported bear a normal relation to the cases, the objection is more apparent than real.

The reason for using cases instead of deaths is that we had no tabulation available for the deaths by wards for the years prior to 1912.

MARRIAGE REGISTRATION: ONE WAY OUT.

W. J. V. Deacon,

State Registrar of Vital Statistics, Topeka, Kan.

Read before the Section on Vital Statistics, American Public Health Association, Colorado Springs, September, 1913.

Marriage presents two important elements, one legal and one social,—it is both a legal contract and a status.

By entering into a marriage contract the parties thereto, in addition to assuming rights and liabilities toward each other, assume a new relation toward society in general.

The term marriage has been defined as "the act of marrying or uniting a man and woman as husband and wife; the legal union of a man and woman for life; the state or condition of being married, wedlock." Herbert Spencer in his Principles of Sociology says: "The martial condition has gradually evolved," and that the first stage was promiscuity, joined with indefinite polygamy, and in due time was evolved monogomy, the natural form of sexual relation for the human race.

Because of the great legal importance of the marriage contract, because of its immense importance to society, and because it is one of the vital elements of human life, and the fundamental event in the establishment of the recognized basis of civilization and of law and order—the family—it is because of all of these things that the law undertakes to regulate the marriage contract more closely than any other form of contract.

The Census Bureau defines vital statistics as the statistics of births, stillbirths, deaths, marriages, divorces and sickness. It further states that effective registration of marriages and divorces is quite different from the effective registration of births and deaths.

I believe it is generally conceded by all officials that the registration of marriages is a very proper function of the vital statistics department, and that it will not be necessary for me to present any argument to this end.

I presume there is no state but what has maintained, at least in some degree, a form of marriage registration. In Kansas, prior to this year, it has been the custom to issue a marriage license through the probate court of each county, the form of such license and the method of its issue and the regulations and conditions to be fulfilled being defined by statute. In Kansas there are 105 counties, some of them of scarcely more than 1,000 population, the largest being approximately 100,000. The license issued by the probate court was required to be endorsed by the person performing the marriage ceremony and was returned to the probate judge for record. In many of these counties the records were beautifully kept,

fully indexed, and to find the record of any marriage occurring within the history of the county was a matter of only such time as might be required to study through the index of from one to one hundred different books. In other counties the records were very loosely kept; many of them were lost through fire or carelessness, and in general the records were in a more or less chaotic condition.

Another feature that was perhaps more significant than any other was the fact that a marriage license might be issued by any probate judge in the state regardless of the residence of the contracting parties, and when so issued the marriage might be performed by any one authorized by law to perform the marriage ceremony in the state regardless of the residence of the contracting parties or the place of issue of the license. The result was that in order to find the record of a marriage that occurred "somewhere in Kansas," and all registration officials will recognize that this is frequently the best information obtainable, it would be necessary to seek through the records of 105 counties, and if the record was an old one, with many opportunities for it having been lost or so poorly indexed as not to be found.

As an illustration of the difficulty in tracing these matters, I would cite an instance that came to my attention where the groom was a resident of Denver, Col., the prospective bride was a resident of Marshall County, Kansas; the groom passed through Topeka on his way to the bride's home and as he changed cars there and had a few hours of leisure he improved it by securing a marriage license in Shawnee County. The marriage was duly performed at the bride's home and the marriage is now of record in Shawnee County, one hundred miles from the home of the bride and in a county where she had never been. It is hard to conceive under what conditions prospective heirs or others interested a generation from now, who might be required to prove this marriage, would think of looking in the records of Shawnee County for their information. This is only one of many hundreds of instances that might be recited; but to sum up the point which I desire to make was the necessity for a centralized record.

In 1911 the legislature passed a bill that in its provisions was quite similar to the model vital statistics law. For six years, and through three legislatures, this bill had been before the state, and for the two years immediately preceding its passage the state board of health conducted an active campaign of education in its behalf. The success of that campaign may be imagined when I tell you that there were but two votes against the bill on final passage. However, after the bill had passed we went before the Ways and Means Committee to ask for money for the maintenance of the Central Division of Vital Statistics and estimated that the least amount we could do with would be $5,000 per year the first biennium, but asked for $6,000. It is not necessary for me to recite the

story of the battle which followed, bloodless to be sure, but it ended in our securing an appropriation for the biennium of $2,500 a year. Had it not been that we were able to divert other funds of the state board of health to the work, the enforcement of the vital statistics law would have been an impossibility. With the advent of the legislature of 1913, representing a sharp political change and elected on an economy platform, it became apparent that we could not expect an increase in our previous appropriation, and further that the other funds of the department would be so deeply cut that we could not secure the aid which we had the previous biennium. I had been working tentatively on the preparation of a bill providing for the centralization of the marriage records, but fearing that we could not secure sufficient help in the office to carry on the work, thought best not to have the bill introduced; but when it became apparent that it was the purpose of the legislature to greatly reduce, if not entirely cut out the appropriation for vital statistics work I conceived the idea of creating a revenue from the marriage registration that would enable us to carry on the work of the department.

The only records which the department had available of the number of marriages were records secured during 1907 and 1908 by the assessors, and these records showed approximately 10,000 marriages for 1907 and about 9,500 for 1908. We, therefore, fixed the fee at 50 cents and provided that said fee should be in addition to the other fees required, and that the entire amount thus collected was to be used for the maintenance of the Central Division of Vital Statistics. We used the argument that this was a tax that came upon a man in the ordinary course of events but once in a life time, and came at a time when most people at least were willing to pay it.

We left no stones unturned to secure the passage of this act, which was done without material amendment and is now in force, becoming effective about May 1, upon the publication of the statute book. The revenue derived therefrom, up to the close of August, a period of four months, has amounted to $2,652.50, a rate of about $8,000 per year, and while it is not as much as we would like to have by any means, is somewhat more liberal than we could expect from legislative appropriation, and we are enabled to do at least a fair portion of the work which should be done.

Believing that the Kansas legislature is not materially different from the legislatures of other states in the matter of appropriations, particularly for work in the line of sanitation or preventive medicine, or any other work from which the people as a whole derive the benefit, I am giving you this little paper describing "One Way Out" in the hope that it may suggest to some of you a means of securing the necessary financial aid to carry on the work of vital statistics.

The law is working quite smoothly, the probate courts getting in their reports promptly, and it is rare that any serious question arises.

Considerable protest was raised when the law first became operative because the probate judge did not receive the license back and the county had no record as to whether or not the marriage ceremony was ever performed. To obviate this difficulty we report back to the probate judge each month the numbers of those licenses which have not been returned.

The original license bearing the endorsement of the person performing the ceremony is filed as the record, after being card-indexed under the name of each of the contracting parties.

The registration of marriages being a proper function for the state, we have by this law accomplished the dual result of providing for a centralized registration and freed the entire Central Division of Vital Statistics from dependence on legislative appropriation.

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POLITICS AS A FACTOR IN RETARDING PUBLIC HEALTH PROGRESS.

It is refreshing to observe in the advertisement contained elsewhere in this issue of the JOURNAL the notice of an examination for an important position in the public health service of a southern city in which it is officially stated that the successful candidate will be appointed for three years and "beyond political interference." This is a sign of the times and a right welcome one. The divorcement of politics and public health proceeds apace but is far from complete. One of the serious barriers that restrains persons

from entering the public health field as a profession, exists, in our opinion, in the evident inability to guarantee positions for efficient public health servants which will be devoid of political preferences and interferences. Dr. Hodgetts, of Ottawa, writing over two years ago in this JOURNAL tersely stated that "men should not be placed in prominent health offices unless qualified, for men are not born sanitarians, nor can they be hatched out in a night at party caucus." As time goes on more men and women are training themselves for a life-work in the public health service. Many hesitate in so doing, largely on account of the all too frequent examples of public health officials being peremptorily removed from office with overturns in state or city government.

In the days when the health department's chief occupations consisted of the inspection of nuisances and the placarding of houses, no high degree of knowledge or scientific attainment was necessary, and frequent changes made little difference in a system already recognized as being bad. Today, the health officer should be more than a sanitary patrolman; he should be so trained that he may be capable of intelligently studying preventable diseases in order to ferret out information which will possibly enable him to trace to their sources. His failures to do this will be many, but the benefits derived from occasional successes may bring advantages of a great magnitude to the community. The health officer of today must be an educator and capable in publicity work. With the recognition of the significance of contact infection, and with the increasing testimony of the prevalence of germ carriers, it is becoming more and more essential that the public be adequately informed that much of the existing communicable disease arises from such sources and that water purification, milk pasteurization, and similar preventive measures will not in themselves give him more than a partial protection. The modern health officer needs to be a sociologist or at least sociologically inclined. The interrelation of preventable diseases with poverty, unemployment, underemployment, etc., are real, even if oftentimes subtle and insidious. Without enumerating all the desirable characteristics of a successful public health worker, we may finally add that the health officer should possess a personality, which combines tact with fearlessness, and commands the respect of the people. The requirements for the ideal are not easy to fill and the political uncertainties, to an extent perhaps larger than is generally recognized, are responsible in deterring many potential public health workers from entering the field. Separation of the public health work of our communities from the sphere of political spoilage is to be ardently advocated and worked for.

There are few more valuable services to be performed than the stimulation of communities to demand that the public health service be accorded a "hands off" policy by local politicians.

THE ANTIRABIC SERVICE OF THE HYGIENIC LABORATORY FOR THE PAST FIVE YEARS.

JOHN F. ANDERSON,
Director Hygienic Laboratory, Washington, D. C.

Read before the Laboratory Section, American Public Health Association, Colorado Springs, September, 1913.

On April 28, 1908, the antirabic service of the Hygienic Laboratory in Washington, D. C., was inaugurated. As the facilities of this branch of the Public Health Service have been made use of to so much advantage by state boards of health, I thought it might not be untimely to sketch in brief some of the work and the results obtained from the use of the virus both by the Hygienic Laboratory and by state board of health laboratories for the period between April 28, 1908, and July 1, 1913, or slightly over five years' time.

Prior to 1908, it has been the general belief that antirabic virus could not be properly administered unless the individual needing treatment went to a Pasteur institute. This often entailed travel for long distances and consequent delay in beginning the treatment. Many persons exposed to infection were not able to secure treatment on account of the exorbitant charges made at some of the institutes. Previous to August, 1908, when the Hygienic Laboratory began the distribution of antirabic virus by mail to state boards of health, a small amount of glycerinized virus was sold by the New York City health department and sent short distances; but the practicability of distributing the virus through mails was not generally appreciated. Since that time the practicability of shipping virus for use at distant points has been demonstrated in many places.

The virus, as distributed by the Hygienic Laboratory, consists of portions of the dried, glycerinated cord; in no instance is the emulsion sent. As the preparation of the emulsion from the glycerinated cord requires a considerable amount of technical skill, it is insisted that the treatment shall be administered under the supervision of the state health authorities; the virus in no case is furnished to private physicians.

From August, 1908, to July 1, 1913, 4,200 complete treatments of antirabic virus have been distributed by the Hygienic Laboratory, as shown in Table I:

Table II shows the number of treatments sent from the laboratory by fiscal years and illustrates the increase in the use of the virus from the beginning of the service to the present.

TABLE I.

NUMBER OF TREATMENTS SENT FROM THE HYGIENIC LABORATORY FROM AUGUST, 1908, TO JULY 1, 1913.

Sent to	*Number of Treatments.*	*Sent to*	*Number of Treatments.*
Alabama	1,230	North Carolina	841
Arkansas	16	New York	1
Arizona	6	North Dakota	25
California	316	Ohio	1
Colorado	9	Oregon	15
Delaware	60	Canal Zone	75
Illinois	222	Porto Rico	8
Indiana	196	Rhode Island	6
Iowa	144	South Carolina	184
Kansas	81	Tennessee	76
Kentucky	116	U. S. Army	25
Massachusetts	4	U. S. Navy	3
Maryland	2	Virginia	263
Nebraska	2	Washington	12
New Jersey	1	Wisconsin	260
		Total	4,200

TABLE II.

NUMBER OF TREATMENTS DISTRIBUTED BY FISCAL YEARS.

Month.	1909.	1910.	1911.	1912.
July	30	53	68	113
August	29	52	93	101
September	43	56	58	93
October	54	72	91	105
November	58	56	94	88
December	48	38	75	80
January	68	72	79	125
February	45	80	71	112
March	68	67	111	145
April	92	80	135	99
May	73	80	152	158
June	75	84	79	134
Total	683	790	1,106	1,353

Table III shows the number of treatments sent out, by months, for the fiscal years 1909–12. As will be seen from the table, there was no very significant difference in the number of treatments by months and certainly

TABLE III.

NUMBER OF TREATMENTS, BY MONTHS, FOR FISCAL YEARS 1909-12.

Month.	*Treatments Sent Out.*	*Months.*	*Treatments Sent Out.*
July	204	February	217
August	275	March	180
September	250	April	332
October	322	May	342
November	296	June	279
December	241		
January	240	Total	3,178

no preponderance for the so-called "dog days," which are so closely associated by the laity with the occurrence of rabies in animals.

During the calendar years 1909, 1910, 1911, and 1912 treatments for 3,145 individuals were sent from the laboratory. It is probable that not all of the 3,145 treatments were utilized, as in some instances (such as the Canal Zone) beginning treatments were sent out on certain days as a matter of routine. Among the persons treated with the virus, only two developed hydrophobia fifteen days or longer after completing treatment, which gives a percentage of about 0.06 of 1 per cent. who developed the disease within two weeks or longer after completion of the treatment.

Of those treated with the 3,145 treatments there were 13, or 0.4 of 1 per cent. who developed hydrophobia within less than 36 days after beginning treatment (treatments extend over 21 days). The time of onset in these 13 cases in relation to beginning of treatment was as follows: 3 days, 10, 10, 13, 14, 15, 16, 16, 17, 17, 24, 27, and 30 days respectively. The case noted as having developed the disease three days after beginning treatment had not begun treatment until nine days after the bite.

From April 28, 1908, to July 1, 1913, antirabic virus has been administered at the Hygienic Laboratory in Washington to 523 persons. Of these 523 persons, one or about .2 of 1 per cent., developed rabies and died therefrom. Two of the 523 developed so-called "treatment paralysis," both ending in complete recovery.

It is seen that the proportion of males to females was more than double, and that 315 were under thirty years of age.

There were 199 patients who had their wounds cauterized and 324 had no local treatment.

The records show that the animal concerned was a dog in 434 cases, a cat in forty, a horse in fourteen, a member of the bovine species in twenty-eight, and various other animals in seven cases.

The ownership of the animal was known in 358 and unknown in 165 instances. In other words, in 68.4 per cent. of the cases the biting animal was owned and the responsibility for the possibility of infection and the annoyance of treatment lay upon the owner of the animal.

Classified according to the evidence of rabies in the biting animal, we find that a positive diagnosis of rabies was made by laboratory examination in 387 cases; by a veterinarian in twenty-seven instances; and was uncertain in 103 cases. In six cases the laboratory examination was negative.

While this work of the Hygienic Laboratory has been the means of making more accessible the antirabic treatment to persons exposed to the infection of rabies, there does not seem to have been in the United States a decrease in rabid animals or infected localities. Stimson* showed that there was a decrease in the deaths of human beings from rabies, in 1911,

TABLE IV.

SHOWING NUMBER OF PATIENTS GIVEN ANTIRABIC TREATMENT AT THE HYGIENIC LABORATORY FOR THE FISCAL YEARS 1909 TO 1913, BY SEX AND AGE GROUPS.

Age Group (Years).	1909.*			1910.			1911.			1912.			1913.			Totals.		
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
1 to 4.....	9	5	14	3	0	3	10	7	17	3	1	4	7	5	12	32	18	50
5 to 9.....	16	3	19	8	1	9	17	11	28	10	4	14	8	10	18	59	29	88
10 to 14....	10	2	12	3	0	3	6	4	10	5	4	9	10	5	15	34	15	49
15 to 19....	7	2	9	2	3	5	8	3	11	6	1	7	0	3	3	23	12	35
20 to 29....	27	3	30	7	6	13	12	4	16	10	4	14	17	3	20	73	20	93
30 to 39....	16	11	27	9	0	9	11	5	16	12	7	19	11	6	17	59	29	88
40 to 49....	17	0	17	3	2	5	8	4	12	7	1	8	10	5	15	45	12	57
50 to 59....	3	1	4	4	0	4	4	1	5	4	1	5	3	1	4	18	4	22
60 and over	1	0	1	3	0	3	3	1	4	1	0	1	4	0	4	12	1	13
Not stated..	1	2	3	1	2	3	4	5	9	2	1	3	7	3	10	15	13	28
Total	107	29	136	43	14	57	83	45	128	60	24	84	77	41	118	370	153	523

* Includes last two months of fiscal year 1908

of over 12 per cent. as compared with 1908, but that the number of infected localities had increased from 534 in 1908 to 1,381 in 1911 and that during the same period the disease had spread to the Pacific Coast states—states which were apparently free from the disease in 1908. In 1908 there were twenty-three institutions in the United States where the antirabic treatment was administered; in 1911 there were not less than forty-two, and the number in 1913 is doubtless still larger. In addition, there are at the present time nine firms or laboratories that are licensed by the secretary of the treasury to furnish virus for use by practising physicians at near or distant points.

*Stimson, A. M.: Rabies in the United States during the year 1911. Public Health Reports, Vol. 27 No. 28, July 12, 1912.

It is to be greatly regretted that, while the use of the virus for the treatment of persons bitten has been rendered so much more accessible, the enforcement of measures to prevent the running at large of rabid animals has not been equally advanced. There is urgent need for the enactment

TABLE V.

SHOWING LOCATION OF BITES AND SEVERITY OF WOUNDS ON PATIENTS GIVEN ANTIRABIC TREATMENT AT THE HYGIENIC LABORATORY FOR THE FIVE FISCAL YEARS 1909 TO 1913.

	1909.*	1910.	1911.	1912.	1913.	Totals.
Location of bites or wounds:						
Finger	27	18	20	21	17	103
Hands	37	10	41	23	44	155
Forearm	22	9	11	12	17	71
Arm	2	2	5	4	6	19
Feet	5	3	3	3	7	21
Legs	19	3	21	14	14	71
Thighs	12	2	7	2	3	26
Neck	0	0	0	0	1	1
Face	10	10	11	10	10	51
Scalp	1	0	0	2	0	3
Shoulder	0	0	0	0	0	0
Buttock	1	0	2	0	0	3
Chest	1	0	1	1	0	3
Abdomen	0	0	2	0	0	2
Not stated	4	2	11	2	6	25
More than one region	5	2	7	10	7	31
Severity of bites or wounds:						
Slight	76	33	86	51	70	316
Severe	24	9	12	17	18	80
Wounds not bites	33	15	30	16	30	124
Contact, no wound	3	0	0	0	0	3

*Includes last two months of fiscal year 1908.

and enforcement of a law or regulations, such as those endorsed at the conference of State Health Officials with the Public Health Service in 1910.

That rabies can be eradicated or greatly reduced has been demonstrated by the success of suppressive measures in England, Scandinavia, and certain parts of Germany. And it is reasonable to suppose that the enforcement of similar measures against the disease in the United States should result in a decrease of the prevalence of rabies in this country.

CHILD HYGIENE.

WILLIAM J. GALLIVAN, M. D.,
Boston, Mass.

Read before the Massachusetts Association of Boards of Health, Boston, Mass., January 29, 1914.

It is generally conceded that many a man in the prime of life is laid low with incurable illness which can be traced to infection of early childhood. As examples of such infection, we can refer to scarlet fever and its sequelæ of chronic bright's disease; to tonsilitis with its sequelæ of defective tonsils, acute infectious arthritis, and valvular heart disease. And in many quarters, it is believed that the toxins of infantile gastro-enteritis produce sequelæ equally disastrous if not so well recognized.

So, preventive medicine finds its most fertile field among the communicable diseases of childhood and looks to boards of health as the most powerful agent for development and growth.

The great cities of this country recognize this condition and now maintain in their boards of health, divisions of child hygiene. The National Government has recently incorporated in its Department of Commerce and Labor a division of child welfare and it can be safely asserted that no health department is properly organized which does not include in its field of activities a division devoted to such work.

The Division of Child Hygiene of the Boston Board of Health was organized in 1911. Medical inspection of schools had been conducted long before this date. And it is our boast that this particular branch of the work had its birth in Boston, due to the initiative of the Nestor of this Association, Dr. Samuel H. Durgin.

Pre-natal and post-natal work was started at this time by two nurses, who attempted to cover the whole city.

However, in 1911, the various threads were gathered together resulting in an organized department.

The Division of Child Hygiene of the Boston Board of Health is concerned with the physical welfare of every child in Boston from a period before birth up to the age of 16 years. Its work is sub-divided into three divisions:

1st, Pre-natal and Post-natal work.

2d, Medical Inspection of Schools.

3d, Physical Examination of Licensed Minors.

The physical examination of licensed minors is conducted pursuant to statute law which requires that every child between the ages of 14 and 16 years must undergo a physical examination in order to determine whether

or not the applicant is physically fit for the employment which he elects. Applicants ill with demonstrable tuberculosis are denied certificates; those ill with organic cardiac disease are not allowed to engage in laborious occupation; the unvaccinated and those suffering from remediable communicable disease suffer a postponement in the issuance of a certificate.

Medical inspection of schools has for its object:

1st, The protection of the school children from contagion unrecognized by teacher or parent.

2d, The detection of defects which if allowed to remain uncorrected would result in permanent injury, thus impairing efficiency and inviting criticism of the waste of public money for public education.

Every school building in the city, public and parochial, is visited by the school physicians on every school morning of the year. The work consists of a morning inspection and an annual physical examination.

At this morning inspection, every pupil showing symptoms of illness is sent home with a note to his parent or guardian, stating the diagnosis, if possible, and advising that the child be placed under medical care. At the morning inspection, the school physician examines every child returning to school after absence on account of illness or previous exclusion or from unknown cause.

Physical Examination of the pupils in the public schools is authorized by Chapter 302, Section 5, Acts of 1906, which requires that every child in the public schools shall be carefully examined at least once in every school year in order to determine whether he is suffering from any defect or disability tending to prevent his receiving the full benefit of his school work.

Pursuant to this law, and with the consent of the authorities in charge of the parochial schools, a physical examination is made once a year of every school child in Boston, numbering, in 1913, 123,000. A record of such examination is made on a card which is kept in the school building and open to the scrutiny of principal and teachers.

Notice of defects detected is sent to the parent or guardian of each pupil and a request is made that the family physician, family dentist or medical charity be consulted concerning the treatment of the defects noted. A duplicate copy of such record card is kept on file at the central office. This physical examination record card provides for the result of the Physical Examination of the pupil from the time he enters the kindergarten class until he is graduated from the high or normal school and accompanies the pupil from grade to grade. The result of such examinations is recorded on the card kept in the school building and duplicates are mailed to the central office.

The examination covers the topics enumerated as follows: mental deficiency; defective nasal breathing, anterior, posterior; hypertrophied

tonsils; defective teeth; primary, secondary; defective palate; cervical glands; pulmonary disease, tuberculosis, non-tuberculosis; cardiac disease, organic, functional; nervous disease, organic, functional; chorea; orthopedic defects, tuberculosis, non-tuberculosis; skin; rickets; malnutrition.

The results of the first year's examination showed that 65 per cent. of the school children were physically defective. The result of the second year's examination showed an improvement in conditions, defects being corrected to an extent varying from 25 per cent. in teeth corrections to 75 per cent. in skin corrections. The result of this year's examination is not available on account of incomplete returns, but a review of the returns at hand shows such an improvement over last year as to lead to hopeful predictions, corrections varying from 30 per cent. in teeth corrections to 80 per cent. in skin.

The consoling feature of the work is that many of the defects are slight and easily remedied. Of the total number of children thus far reported as defective, 50 per cent. have only one defect, viz., defective teeth. The serious defects such as pulmonary tuberculosis, organic cardiac disease, forming a very small percentage of the total number.

Medical inspection of schools has made a noteworthy contribution to the practice of medicine. It has demonstrated that an hypertrophied tonsil may many times be physiological and due to the eruption of secondary teeth, and so, many nose and throat men refuse to operate on such tonsils until teeth due at certain ages have appeared. It has demonstrated that enlarged cervical glands are rarely primarily tuberculous; that they are due to defective teeth, defective tonsils, adenoids and pediculi. And, as originally claimed by Donoghue, the removal of the cause results in cure.

A study of these defects reveals the information that a great majority of defects are due to conditions which are best remedied before the age of five years, the generally accepted period of school age. Examples of such defects are the presence of adenoids whose removal is advised before bony changes occur, resulting in permanent deformity and before injury is done to the drum of the ear. Care of primary teeth will install the habit of oral hygiene and pave the way for the better reception of the permanent teeth. Anaemia, malnutrition and orthopedic defects are better handled at this age and in many instances prevented.

This is the work of the pre-natal and post-natal division.

For the year ending December 31, 1913, there were born in Boston, 19,300 babies.* Of this number, 1,497 died before reaching the age of one year. A more minute subdivision shows that 295 died within twenty-four hours of birth; 268 from one day to one week; 321 from one week to one

*These statistics must not be confused with the Annual Statistics on Infant Mortality. They are estimated on an entirely different basis.

month; 229 from one month to three months; 266 from three months to six months; 96 from six months to nine months and 22 from nine months to twelve months. To recapitulate, 1,113 of these babies died before reaching the age of three months.

The causes of these deaths, as variously reported, is as followed:

Disorders of nutrition	458
Prematurity	335
Obstetrical trauma	168
Congential defects	118
All other causes	418

This is the condition, not alone peculiar to our city, but it is a story repeated the world over. For years, numerous agencies have tried to cope with these conditions. In spite of medical skill in diagnosis and treatment, this annual holocaust continues. So that all eyes turn to preventive medicine for relief.

Owing to a satisfactory system of reporting births, the division of child hygiene is furnished with a list of the name and address of every baby born in Boston. One visit is made to the home of every such baby by the nurses connected with this department. Cases are revisited according to conditions found, it being obvious that the breast-fed baby, the baby of the well to do and those of the well informed require less supervision than those of their less fortunate neighbors. The division of child hygiene works in perfect harmony with every agency in the city engaged in child welfare work. Through such team work, infant mortality has been reduced in our city from 126 deaths per 1,000 births in 1911, to 117 deaths per 1,000 births in 1912, to 107 deaths per 1,000 births in 1913. Encouraging as the results are, they are far from satisfactory and are capable of a tremendous improvement.

At such visits, mothers are urged to nurse their babies. The danger of bottle feeding is explained; and repeated visits are made to render assistance where needed, and to demonstrate the city's interest in the value of human life. Every mother is provided with a printed circular issued by this department containing information on the care of the baby and telling of the dangers and pitfalls incident to early life. All children under school age are subject to the nurse's scrutiny on these visits and medical aid obtained for cases which otherwise would have passed into the neglected column. A continuance of this work warrants the assertion that the children of the future will enter school far better equipped physically than their predecessors.

Upon these visits, the nurses have established a clientele among whom pre-natal work has been done to a slight extent. Personal visits are made to such women by the nurses of this department and advice and instruction

on pertinent matters is given. Particular stress is laid on the importance of competent medical attendance with a view of diminishing the number of deaths due to obstetrical trauma. A circular is now in process of preparation by the division of child hygiene for universal distribution, containing advice on general hygiene, which cannot fail to achieve results in diminishing the deaths due to prematurity. The value of breast feeding is emphasized at a time when this form of nourishment can be obtained and the results of this instruction raises our hope of reducing the number of deaths annually due to disorders of nutrition.

Additional nurses and more frequent visits will prove a powerful aid in the development of this work. Municipal retreats, where the expectant mother may obtain rest, nutrition and supervision; municipal hospitals, where the poor and needy may obtain competent medical attention; and for those in moderate circumstances who prefer to stay at home under the care of the family physician, the training of women attendants who will take the place of the untrained neighbor whose sympathy is commendable, but whose services are execrable, and the hospital-trained nurse whose charges are prohibitive, are suggestions which can easily be adopted by municipal authorities who now recognize that this work is as important a function of government, as fire, police or school activities.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.

The annual meeting of the Massachusetts Association of Boards of Health was held at the Brunswick Hotel, Boylston Street, Boston, Thursday, January 29, 1914, under the presidency of Dr. Samuel H. Durgin.

The following applicants were elected members of the Association: Charles W. Milliken, Barnstable Board of Health; Dr. James R. Kirby, Clinton Board of Health; Dr. Harry R. Coburn, State Infirmary, Tewksbury; Rev. William B. Geoghegan, New Bedford; Dr. Lewis W. Hackett, Cambridge; Dr. Francis B. Grinnell, Dover; Dr. Lawrence Poole, bacteriologist, Gardner Board of Health; Joseph Dee, Jr., agent, Concord Board of Health; Henry N. Jones, bacteriologist, Massachusetts State Board of Health; M. J. Butler, Leominster Board of Health; Dr. Oliver H. Howe, school physician, Cohasset.

Report of the Treasurer for 1913.

Francis George Curtis, Treasurer, in account with the Massachusetts Association of Boards of Health:

Dr.

Balance from 1912	$1,603.85
Dues for 1912	19.00
Dues from 1913	414.50
Dues from 1914	4.00
Interest, Savings Bank	42.02
Interest, National Bank	7.24
	$2,090.61
Balance to 1914	$1,545.83
In West Newton Savings Bank	1,082.42
First National Bank of West Newton	462.41
Cash in hands of treasurer	1.00

Cr.

American Public Health Association Journals	$184.25
Printing, etc., for secretary	73.42
Printing, etc., for treasurer	16.75
Clerical assistance for secretary	12.00
Clerical assistance for treasurer	3.00
Arthur T. Lovell, reporting meetings	94.52
Legislative Committee:	
Printing	15.56
Expenses	5.40
Milk Committee:	
Expenses	9.00
Committee on Uniform Health Reports:	
Reprints	45.00
Stamps and envelopes	16.90
Clerical assistance	8.00
B. R. Rickards:	
Back numbers of Journal	13.00

F. G. Curtis, treasurer:	
Expressage and sundry expenses	15.30
Stereopticon	10.00
Cigars, July meeting	6.18
Dr. F. X. Mahoney:	
Sundry expenses, July, 1912, meeting	16.00
Dr. G. S. Fuller:	
Overpayment of dues	.50
Total expenses	$544.78

Respectfully submitted,

FRANCIS GEO. CURTIS,
Treasurer.

ELECTION OF OFFICERS.

The Committee on Nominations presented the following list of nominees for the ensuing year:

President, Mr. James C. Coffey, Worcester.

First Vice-President, Dr. Milton J. Rosenau, Brookline.

Second Vice-President, Dr. Charles V. Chapin, Providence, R. I.

Treasurer, Dr. Francis G. Curtis, Newton.

Secretary, Dr. Francis H. Slack, Boston.

Executive Committee (term, two years), Dr. Adam S. MacKnight, Fall River; Dr. Francis X. Mahoney, Boston; Dr. Frederick H. Thompson, Fitchburg; Mr. Raymond L. Newcomb, Salem; Dr. Frank G. Wheatley, North Abington.

On motion duly seconded, the secretary was instructed to cast the ballot of the Association for the above officers. Motion was carried and the officers declared elected.

ADOPTION OF NEW CONSTITUTION.

The new constitution was unanimously adopted by the association with the amendment of striking out the word "two" and inserting in place thereof the word "one" in Article V.

Doctor Gay presented the following resolution:

WHEREAS, One of the most important functions of boards of health is the prompt return of reliable vital statistics, and

WHEREAS, The chief factors of vital statistics, the births and deaths, are medical matters and hence necessarily in charge of physicians, and

WHEREAS, By reason of the character of the data involved, their supervision and tabulation can be much better done by a physician, who has been properly trained and educated for this work, and

WHEREAS, The vital statistics of Massachusetts are in charge of the Secretary of State, instead of the medical department of the state, now, be it

Resolved, By the Massachusetts Association of Boards of Health, in annual meeting assembled, that it would be for the distinct advantage of the public welfare to have the vital statistics placed in charge of the State Board of Health for their proper arrangement and tabulation previous to their being given in charge of the Secretary of State for permanent custody. By this means the vital statistics would remain in the hands of the medical profession, where they naturally belong, until they have been put in proper shape for permanent record.

Resolved, That appreciating the importance of the desired change and of the efforts now being made to bring it about, this Association most earnestly approves of House Bill, No. 1348, which simply directs that the vital statistics of this state on their way to the office of the secretary of state shall pass through the office of the State Board of Health for the purpose of permanent arrangement and tabulation.

Resolved, That a committee of three be appointed by the President to represent this association at the hearings before the legislature, or its committees, and to take such other action as may seem wise to accomplish the object in hand.

The resolution was unanimously adopted.

Report of Committee Upon Period of Isolation and Exclusion from School in Cases of Communicable Disease.

The committee appointed to consider and report upon the period of isolation and exclusion from school in cases of communicable disease, hereby submit the following report:

Your committee realized that there are many communicable diseases which, in the stage of our present civilization, it is impracticable to isolate; that there are many communicable diseases whose method of transmission is not definitely known, therefore it has been deemed expedient to omit such from this list.

Your committee has approached this task with an earnest desire to annihilate the superstitions which have surrounded the theory of the transmission of disease; to eliminate the hardships attendant upon unreasonable isolation and to educate the public in the methods of contracting disease.

Your committee feels that the adoption of these recommendations by the Boards of Health of the various cities and towns of the Commonwealth would result in a more uniform and more reasonable period of isolation and exclusion.

William J. Gallivan, M. D., *Chairman*.
Francis G. Curtis, M. D.,
Fred W. Howe,
Edwin H. Place, M. D.

Diphtheria.

Modes of Infection:

Secretions of the upper air passage or from any infected area.

Transmission:

By direct contact with patient or carrier.

By modified contact, *i. e.*, articles which have been recently infected by the fresh secretions.

Period of Isolation:

Until two successive negative cultures have been obtained from both nose and throat; the last culture in each case to be taken by the Board of Health after an interval of at least twenty-four hours.

Method of Control:

A. Recognition of the disease.
   1. By inspection.
   2. By culturing all inflammations of mucous membranes.
   3. By culturing all persons known to be exposed.

B. Isolation.
   1. Home.
   2. Hospital.

C. Immunization.
   1. By anti-toxin.

D. Disinfection.
   1. By boiling objects infected.
   2. By scrubbing woodwork and furniture.

E. Schools.
   1. Exclusion. All members of a household where a person is ill with diphtheria shall be excluded from school until one week has expired from the date of the last exposure to the disease, unless immunized by anti-toxin and showing two negative cultures.
   2. Closing of schools. Schools should not be closed during an epidemic of diphtheria; daily inspection and culturing will achieve better results.
   3. All members of a household where a person is isolated on account of being ill with diphtheria may be allowed to continue at their usual occupations, except those who are engaged in the handling of milk.

Scarlet Fever.

Modes of Infection:

Secretions of the upper air passages; mucous or serous discharge from the ear or any skin lesion of the body.

Transmission:

By direct contact with patient or carrier.

By modified contact, *i. e.*, articles which have been recently infected by the fresh secretions.

Period of Isolation:

There should be a minimum isolation period of five weeks; period of isolation should continue during the presence of any discharge from the ear, nose or lesions of the skin.

Method of Control:

A. Recognition of disease.
B. Isolation.
   1. Home.
   2. Hospital.
C. Immunization.
   1. Uncertain.
D. Disinfection.
   1. By boiling objects infected.
   2. By scrubbing woodwork and furniture.
E. Schools.
   1. Exclusion. All members of a household where a person is ill with scarlet fever shall be excluded from school until one week has expired from the date of the last exposure to the disease unless immunized by a previous attack of the disease.
   2. Closing of schools. Schools should not be closed during an epidemic of scarlet fever. Daily inspection of pupils will achieve better results.
   3. All members of a household where a person is isolated on account of being ill with scarlet fever may be allowed to continue at their usual occupation, except those who are engaged in the handling of milk.

German Measles.

Modes of Infection:

Secretions of the upper air passages.

Transmission:

By direct contact with patient.

Period of Isolation:

Period of isolation should continue for seven days after the appearance of the eruption.

Method of Control:

A. Recognition of disease.
B. Isolation.
   1. Home.
C. Immunization.
   1. None.
D. Disinfection
   1. Unnecessary.

E. Schools.
1. Exclusion. Only the patient shall be excluded from school.
2. Closing of Schools. Schools should not be closed during an epidemic of German measles. Daily inspection of pupils will achieve better results.
3. All members of a household where a person is isolated on account of being ill with German measles may be allowed to continue at their usual occupations.

Measles.

Modes of Infection:

Secretions of the upper air passages.

Transmission:

By direct contact with patient.

Period of Isolation:

Period of isolation should continue for ten days from the appearance of the eruption.

Method of Control:

A. Recognition of the Disease.
1. Koplik spots appear from one to six days before appearance of rash.
B. Isolation.
1. Home.
2. Hospital.
C. Immunization.
1. None.
D. Disinfection.
1. Unnecessary.
E. Schools.
1. Exclusion. All members of a household where a person is ill with Measles shall be excluded from school until two weeks has expired from the date of the last exposure, unless immunized by a previous attack of the Disease.
2. Closing of Schools. Schools should not be closed during an epidemic of measles. Daily inspection of pupils will achieve better results.
3. All members of a household where a person is isolated on account of being ill with Measles may be allowed to continue at their usual occupations.

Chicken Pox.

Modes of Infection:

Lesions of the skin and mucous membrane.

Transmission:

1. By direct contact with patient.
2. By modified contact, *i. e.*, articles which have been recently infected.

Period of Isolation:

Period of isolation should continue during the presence of the skin or mucous membrane lesion.

Method of Control:

A. Recognition of the disease.
B. Isolation.
1. Home.
2. Hospital.
C. Immunization.
1. None.
D. Disinfection.
1. By boiling objects infected.
2. By scrubbing woodwork and furniture.

E. Schools.
1. Exclusion. All members of a household where a person is ill with chicken pox shall be excluded from school for three weeks after the last exposure to the disease, unless immunized by previous attack of the disease.
2. Closing of Schools. Schools should not be closed during an epidemic of chicken pox. Daily inspection of pupils will achieve better results.
3. All members of a household where a person is isolated on account of being ill with chicken pox may be allowed to continue at their usual occupations.

Whooping Cough.

Modes of Infection:

Secretions of the upper air passages.

Transmission:

By direct contact with patient.

Period of Isolation:

There should be a minimum isolation period of three weeks; period of isolation should continue during the paroxysmal stage.

Method of Control:

A. Recognition of disease.
1. Catarrhal symptoms of nose and eyes precede the paroxysmal stage.

B. Isolation.
1. Home.
2. Hospital.

C. Immunization.
1. Uncertain.

D. Disinfection.
1. Unnecessary.

E. Schools.
1. Exclusion. All members of a household where a person is ill with whooping cough shall be excluded from school until two weeks has expired from the date of the last exposure to the disease, unless immunized by previous attack of the disease.
2. Closing of Schools. Schools should not be closed during an epidemic of whooping cough. Daily inspection of pupils will achieve better results.
3. All members of a household where a person is isolated on account of being ill with whooping cough may be allowed to continue at their usual occupations.

Mumps.

Modes of Infection:

Secretions of the mouth.

Transmission:

By direct contact with the patient.

Period of Isolation:

There should be a period of isolation for three weeks.

Method of Control:

A. Recognition of the disease.
1. Steno's duct is inflamed in the early stage of disease.

B. Isolation.
1. Home.
2. Hospital.

C. Immunization.
1. None.

D. Disinfection.
1. Unnecessary.

E. Schools.
1. Exclusion. All members of a household in which a person is ill with mumps shall be excluded from school until two weeks has expired from the date of the last exposure, unless immunized by a previous attack of the disease.
2. Closing of Schools. Schools should not be closed during an epidemic of mumps. Daily inspection of pupils will achieve better results.
3. All members of a household where a person is isolated on account of being ill with mumps may be allowed to continue at their usual occupations.

Trachoma.

Modes of Infection:

Secretions of the eye.

Transmission:

By direct contact with patient.

By modified contact with articles which have been recently infected by fresh secretions.

Period of Isolation:

Until two weeks have expired since the last appearance of secretion, with freedom from redness of the conjunctiva.

Method of Control:

A. Recognition of disease.
B. Isolation.
1. Home.
2. Hospital.
C. Immunization.
1. None.
D. Disinfection.
1. By boiling objects infected.
2. By scrubbing woodwork and furniture.
E. Schools.
1. Exclusion. Only the patient shall be excluded from school.
2. Closing of Schools. School should not be closed during an epidemic of trachoma. Daily inspection of pupils will achieve better results.
3. All members of a household where a person is ill with trachoma may be allowed to continue at their usual occupations.

Influenza.

Modes of Infection:

Secretions of the upper air passages.

Transmission:

By direct contact with patient.

By modified contact, *i. e.*, articles which have been recently infected by the fresh secretions.

Period of Isolation:

Until subsidence of catarrhal symptoms.

Method of Control:

A. Recognition of disease.
B. Isolation.
1. Home.
2. Hospital.
C. Immunization.
1. None.
D. Disinfection.
1. Unnecessary.
E. Schools.
1. Exclusion. Only the patient to be excluded from school.

2. Closing of Schools. Schools should not be closed during an epidemic of influenza. Daily inspection of pupils will achieve better results.
3. All members of a household where a person is isolated on account of being ill with influenza may be allowed to continue at their usual occupations.

Typhus Fever.

Modes of Infection:

From the blood stream.

Transmission:

Through pediculi.

Period of Isolation:

Until recovery, and until the patient is free from pediculi.

Method of Contro':

A. Recognition of the disease
B. Isolation.
   1. Home.
   2. Hospital.
C. Immunization.
   1. None
D. Disinfection.
   1. Extermination of pediculi.
E. Schools.
   1. Exclusion. All members of a household where a person is ill with typhus fever shall be excluded from school until free from pediculi.
   2. Closing of Schools. Schools should not be closed during an epidemic of typhus fever. Daily inspection of pupils will achieve better results.
   3. All members of a household where a person is isolated on account of being ill with typhus fever may be allowed to engage in their usual occupations provided they are free from pediculi.

Typhoid Fever.

Modes of Infection:

Urine and feces.

Transmission:

By direct contact with patient or carrier.

By modified contact, *i. e.*, articles which have been recently infected; particularly milk.

Period of Isolation:

Until recovery and until urine and feces are free from bacilli.

Method of Control:

A. Recognition of disease.
   1. Conradi test.
   2. Widal test.
B. Isolation.
   1. Home.
   2. Hospital.
C. Immunization.
   1. Typhoid vaccine.
D. Disinfection.
   1. By boiling objects infected.
   2. By scrubbing woodwork and furniture.
E. Schools.
   1. Exclusion. All members of a household where a person is ill with typhoid fever shall be excluded from school until two weeks have expired from the date of the last exposure to the disease, unless immunized with typhoid vaccine or by previous attack of the disease.

2. Closing of Schools. Schools should not be closed during an epidemic of typhoid fever. Daily inspection of pupils including Conradi and Widal tests will achieve better results.
3. All members of a household where a person is isolated on account of being ill with typhoid fever may be allowed to continue at their usual occupations except those who are engaged in the handling of milk.

CHOLERA.

Modes of Infection:

Feces.

Transmission:

By direct contact with patient or carrier.

By modified contact, *i. e.*, articles which have been recently infected.

Period of Isolation:

Until the feces are free from bacilli.

Method of Control:

A. Recognition of the disease.
B. Isolation.
   1. Home.
   2. Hospital.
C. Immunization.
   1. Doubtful.
D. Disinfection.
   1. By boiling articles infected.
   2. By scrubbing woodwork and furniture.
E. Schools.
   1. Exclusion. All members of a household where a person is ill with cholera shall be excluded from school until one week has expired from the date of the last exposure to the disease.
   2. Closing of Schools. Schools should not be closed during an epidemic of cholera. Daily inspection of pupils will achieve better results.
   3. All members of a household where a person is isolated on account of being ill with cholera may be allowed to continue at their usual occupations, except those who are engaged in the handling of milk.

SMALLPOX.

Modes of Infection:

Lesions of the skin and mucous membrane.

Transmission:

By direct contact with patient.

By modified contact, *i. e.*, articles which have been recently infected.

Period of Isolation:

Until recovery and lesions have healed.

Method of Control:

A. Recognition of the disease.
B. Isolation.
   1. Hospital.
C. Immunization.
   1. By vaccination.
D. Disinfection.
   1. By boiling objects infected.
   2. By scrubbing woodwork and furniture.
E. Schools.
   1. Exclusion. All members of a household where a person is ill with smallpox shall be

excluded from school until two weeks have expired from the date of the last exposure to the disease, unless immunized by recent successful vaccination.

2. Closing of Schools. Schools should not be closed during an epidemic of smallpox. Revaccination of pupils will achieve better results.
3. All members of the household where a person is isolated on account of being ill with smallpox may be allowed to engage in their usual occupations providing they have been recently successfully vaccinated.

Pulmonary Tuberculosis.

Modes of Infection.

Secretions of the upper air passages.

Transmission:

By direct contact with patient.

By modified contact, *i. e.*, articles which have been recently infected by the fresh secretions.

Period of Isolation:

Only the recalcitrant patient should be isolated.

Method of Contro':

A. Recognition of the disease.
B. Isolation.
   1. Hospital.
C. Immunization.
   1. Doubtful.
D. Disinfection.
   1. By boiling objects infected.
   2. By scrubbing woodwork and furniture.
E. Schools.
   1. Exclusion. Only the patient shall be excluded from school. Special schools for the tuberculous are recommended.
   2. Closing of Schools. Schools should not be closed on account of the prevalency of tuberculosis. Daily inspection of pupils will achieve better results.
   3. All members of a household where a person is ill with pulmonary tuberculosis may engage in their usual occupations, except those engaged in the handling of milk.

Ophthalmia.

Modes of Infection:

Secretions of the eye.

Transmission:

By direct contact with patient.

By modified contact, *i. e.*, articles which have been recently infected by the fresh secretions.

Period of Isolation:

Until two successive cultures, negative of gonococci, have been obtained with an interim of 24 hours, and until the purulent discharge has disappeared.

Method of Control:

A. Recognition of the disease.
   1. Smears.
B. Isolation.
   1. Home.
   2. Hospital.
C. Immunization.
   1. Silver salts.
D. Disinfection.
   1. By boiling objects infected.
   2. By scrubbing woodwork and furniture.

E. Schools.

1. Exclusion. Only the patient shall be excluded from school.
2. Closing of Schools. Schools should not be closed during an epidemic of opthhalmia. Daily inspection of pupils will achieve better results.
3. All members of a household where a person is isolated on account of being ill with ophthalmia may be allowed to continue at their usual occupations.

After a discussion participated in by Doctor Swarts, Mr. Coffey, Doctor Holden, Doctor Slack, Doctor Morrow, Doctor Denny, Doctor Place, Doctor Hastings, Doctor Chapin, Mr. Howe, and Doctor Gallivan, it was moved and seconded that the report be laid on the table for further consideration. Motion was carried.

Paper Presented.

Dr. W. J. Gallivan read a paper on Child Hygiene (printed in this issue of the Journal).

Conclusion.

President Durgin: Gentlemen, I could not pass from this twenty-three years of service at this end of the table to that of a more pleasing association with you in the ranks without giving you my very heartfelt thanks for the courtesies that you have always shown me, and I have the pleasure now of introducing to you your new president, Mr. Coffey of Worcester.

Mr. Coffey: Mr. President and Fellow Members: I wish I had the language that would express to you adequately my appreciation of your confidence and good will as expressed today by you in electing me to the highest office in your gift. Suffice it to say that I am very thankful and very grateful for this honor. It is especially gratifying to me to be the first successor of the only two presidents this Society, during its twenty-three years of existence, has had one of whom for more than a generation has directed the affairs of the State Board of Health and has acquired an international reputation as a pioneer in sanitary effort, the other, and the one just retiring, who has, too, for more than a generation been the chairman of the Board of Health of the City of Boston and has also been a pioneer, with an international reputation. I am conscious of the wide discrepancy that exists between those two men who have heretofore held your most important office and myself in the question of ability. However, I shall endeavor during my term of office to get as near the altitude that they have preserved during those twenty-three years as it is possible for me to attain. This Society has been to me during all those years—and I might say modestly that I was the one who started this organization some twenty-three years ago—a perpetual fountain of knowledge and information. It must be to all of you who are concerned in health work a like fountain, if you will only attend the meetings and support the officials of the organization. Without your encouragement and support they can do very little. With it a great deal can be accomplished. Today's meeting is a proof of what is possible for this organization to do. No man leaving the room today but feels a greater knowledge; even though we have not definitely decided on this important report we all must feel that we know more, and it has given us thought for the next three months, so that when we meet here in April we will be better able to discuss this important communication and settle it definitely.

Mr. Newcomb of Salem moved that the thanks of the Massachusetts Association of Boards of Health be extended to Samuel H. Durgin, M. D., the retiring president of this Association, for his very valuable guidance of the affairs of the organization during his term of office.

The motion was seconded and carried unanimously by a rising vote.

The meeting then adjourned.

MINUTES OF THE FORTY-FIRST ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

COLORADO SPRINGS, COL., SEPTEMBER 9–13, 1913.

FIRST SESSION.

The forty-first annual meeting of the Association was called to order in the Antlers Hotel, Colorado Springs, Col., September 9, 1913, by President Rudolph Hering, and 200 members were present.

The minutes of the preceding meeting having been published in the JOURNAL of the Association, reading was, by unanimous consent, dispensed with.

The report of the Committee on Membership, duly approved by the Executive Committee, was then presented, recommending certain individuals for membership in the Association. It was moved that the Secretary cast the ballot of the Association for the applicants recommended. Carried unanimously.

The Secretary then cast the ballot in accordance with the instructions of the Association. (Complete list of all members elected will be found on page 356.)

The Secretary announced that the following resignations had been received during the past year: Mr. Frank Harvis Carter, Dr. Emilo del Raso, Mr. Charles Wright Dodge, Dr. Nicolas Guerola, Mr. Earle V. Manuel, Mr. Michael O'Shaughnessy, Dr. Charles O. Probst, Dr. Edward C. Register, Dr. William Wishard.

Moved and seconded that these resignations be accepted. Carried.

The Secretary also reported the following deaths since the last meeting: Dr. John Shaw Billings, Dr. J. A. Egan, Dr. James A. Exton, Dr. Rawley White Martin, Dr. Miguel Marquez, Dr. Julian Augustus Mead, Dr. Thomas B. McClintic.

On motion the meeting then adjourned.

SELSKAR M. GUNN, *Secretary.*

RUDOLPH HERING, *President.*

SECOND SESSION.

The meeting was called to order at 2 p. m., September 9, by the President.

Papers were then read as follows:

SYMPOSIUM ON THE CONTROL AND IMPROVEMENT OF FOOD SUPPLIES.

The Function of Federal Authorities. Dr. Carl Alsberg, Bureau of Chemistry, Department of Agriculture, Washington, D. C.

The Function of State Authorities. Mr. H. E. Barnard, State Board of Health, Indianapolis, Ind.

The Function of Municipal Authorities. Dr. Ernst J. Lederle, Commissioner of Health, New York City.

The Function of Voluntary Organizations. Mr. Bailey B. Burritt, Department of Social Welfare, A. I. C. P., New York City.

The Rôle of Controlled and Guaranteed Advertising. Mr. Richard H. Waldo, *Good Housekeeping Magazine*, New York City.

Reappearance of the Ghost of Malthus. Prof. William T. Sedgwick, Massachusetts Institute of Technology, Boston, Mass.

Self-Imposed Supervision by Organized Industries. Dr. H. D. Pease, New York City.

Transportation of Food Products: A Pressing Health Problem. Dr. Peter H. Bryce, Department of Immigration, Ottawa, Canada. (Read by title.)

Public Health Aspects of the Candy Industry. Prof. Samuel C. Prescott, Massachusetts Institute of Technology, Boston, Mass. (Read by title.)

The meeting then adjourned.

SELSKAR M. GUNN, *Secretary.* RUDOLPH HERING, *President.*

THIRD SESSION.

The meeting was called to order at 8 p. m., the President in the Chair.

The address of welcome was delivered by the Hon. C. L. McKesson, Mayor of Colorado Springs. The responses were made as follows:

For the United States, Dr. William C. Woodward.

For the Dominion of Canada, Dr. Frederick Montizambert.

For the Republic of Mexico, Dr. Eduardo Liceaga.

For the Republic of Cuba, Dr. Mario Lebredo.

The President of the Association then delivered the annual address. The meeting then adjourned.

SELSKAR M. GUNN, *Secretary.* RUDOLPH HERING, *President.*

FOURTH SESSION.

The meeting was called to order at 2 p. m., September 10, with the President in the Chair.

The Executive Committee submitted the Report of the Committee of Seven as follows:

REPORT OF THE COMMITTEE OF SEVEN.

The Committee of Seven has held four meetings since the Washington meeting of the Association.

The committee begs to state that since the Washington meeting 122 new members of the Association have been elected as provided for in Chapter 5 of the By-laws as amended December 6, 1911.

During the year the following motions have been passed by the committee:

"That the 1913 meetings of the Association be held in Colorado Springs, June 24–28, inclusive, unless the Secretary receives such information from the local people which makes it very difficult or impractical. In this event, the meetings are to be held September 9–13, inclusive, and the President and Secretary are hereby empowered to reach a definite decision.

"That the membership fee cover, so long as it is not forbidden by the Constitution, one year from the date of admission to membership.

"That there be no issue of a separate volume of Transactions, except as published in the JOURNAL.

"That the Treasurer be authorized to make a loan of $1,000 to carry on the business of the JOURNAL.

"That changes in the Constitution and By-laws required as result of the amendment to same passed at the last meeting and presented by the Secretary be adopted.

"That the Treasurer be authorized to take such steps as he deems necessary to raise money for the carrying on of the JOURNAL until the next annual meetings.

"That the necessary traveling and hotel expenses of the Secretary in attending the Colorado Springs meetings be paid from the treasury of the Association.

"That approximately $100 be appropriated for the use of the Boston office for the necessary clerical expenses in carrying on a membership campaign.

"That the Treasurer be authorized to draw upon the Trust Funds of the Association deposited in the Savings Banks up to the limit of such deposits, or to negotiate loans up to the limit of such saving bank deposits, using the savings bank books as collateral therefor, to meet the current expenses of the Association."

The committee reports that the Treasurer's report appended herewith has been audited by Haskin & Sells, Public Accountants, and also by a special committee consisting of Drs. Bryce and Pease, and found correct in both instances.

RUDOLPH HERING,
Chairman.

It was moved and seconded that the report be adopted as read. Carried.

On behalf of the Executive Committee the Secretary then submitted the following report of the Treasurer, duly audited and approved by the Committee of Seven as follows:

REPORT OF THE TREASURER AMERICAN PUBLIC HEALTH ASSOCIATION, SEPTEMBER 1, 1913.

August 31, 1912, balance,		$372.47
RECEIPTS.		
Association dues,	$2,418.00	
Subscriptions to JOURNAL,	5,217.58	
Sales of JOURNAL,	116.50	
Advertisements,	931.34	
Sales of water analysis report,	1,284.90	
Sales of transactions,	523.87	
Donations,	400.00	
Sales of milk and air analysis reports,	19.81	
Loans, Lincoln Trust Co.,	2,500.00	
Miscellaneous receipts, refunds, etc.,	151.01	
		13,563.01
		$13,935.48
DISBURSEMENTS.		
For Association:		
Printing,	$526.72	
Stationery,	338.88	
Postage,	232.00	
Miscellaneous expenses,	343.92	
Traveling expenses,	96.55	
Printing transactions, Vols. 36 and 37,	513.78	
Reporting Washington meeting,	125.00	
Printing water analysis reports,	730.19	
		$2,907.04

For Journal:			
Salaries,	$2,700.00		
Printing JOURNAL,	2,501.85		
Mailing JOURNAL,	345.93		
Stationery and office printing,	619.75		
Postage,	551.78		
Rent, light and telephone,	540.00		
Clerical Assistance,	1,750.00		
Books, etc., purchased for resale,	102.05		
Furniture and office equipment,	119.32		
Traveling expenses,	105.70		
Miscellaneous expenses,	804.51		
		$10,140.89	
			$13,047.93
August 31, 1913, balance,			$887.55

DETAILS OF BALANCE.

Lincoln Trust Co.,			$462.55
Petty Cash Funds:			
Corn Exchange Bank,		$400.00	
Cash in office,		25.00	
			425.00
			$887.55

LIVINGSTON FARRAND,
Treasurer.

BALANCE SHEET.

American Public Health Association—Condensed to show quick assets and immediate liabilities, as of date August 31, 1913.

ASSETS.

Cash:			
Connecticut Savings Bank,		$1,689.87	
National Savings Bank, New Haven,		1,148.66	
Lincoln Trust Co.,		462.55	
Petty cash funds:			
Corn Exchange Bank,	$400.00		
Cash in office,	25.00		
		425.00	
			$3,726.08
Accounts Receivable:			
Due from sales and subscriptions,		$360.03	
Due from earned advertising,		117.30	
			477.33
Total assets,			$4,203.41

LIABILITIES.

Bills Payable:	
Lincoln Trust Co., loan,	$2,500.00
Accounts Payable:	
Due creditors on open account,	1,411.57
Excess of quick assets over immediate liabilities,	291.84
	$4,203.41

It was moved and seconded that the Treasurer's report be accepted and placed on file. Carried.

The Executive Committee submitted the report of the Committee on Trust Funds as follows:

REPORT OF COMMITTEE ON TRUST FUNDS.

The Committee on Trust Funds begs to report the following motions passed during the year:

November 30, 1912:

"That the Committee on Trust Funds give authority to the Committee of Seven to effect a loan of $1,000 from the special funds of the Association on the security of the bank books.

June 23, 1913:

"That the Committee on Trust Funds give authority to the Committee of Seven to draw on the Trust Funds of the Association up to the limit of such funds, or to effect a loan up to the limit of such funds using the bank books as collateral therefor."

HENRY D. HOLTON,
Chairman.

It was moved and seconded that the report of the Committee on Trust Funds be received and placed on file. Carried.

The Executive Committee submitted the report of the Committee on JOURNAL, including the report of the editor, Dr. Livingston Farrand, as follows:

Committee on Journal, American Public Health Association:

GENTLEMEN—I beg to submit the following brief report on the operations of the AMERICAN JOURNAL OF PUBLIC HEALTH from September 1, 1912, to August 31, 1913.

The editorial management has continued without change, with myself as editor, and Prof. Selskar M. Gunn of Boston as managing editor, and Dr. Philip P. Jacobs of New York as business manager. The concentration of the offices of managing editor and secretary of the Association and of editor and treasurer of the Association as well as the coöperation with the office of the *Journal of the Outdoor Life* have been successful and served to economize both time and money.

The JOURNAL has been issued monthly during the year and we feel that a constant improvement has been manifest.

The efforts to increase the circulation of the JOURNAL and to obtain new advertising have been unremitting.

With regard to the circulation of the JOURNAL it is gratifying to report that there are now 2,429 subscribers, of which number 632 are members of the American Public Health Association, the balance being independent subscribers to the JOURNAL. In addition to this number, every three months 240 members of the Massachusetts Association of Boards of Health receive the JOURNAL by arrangement with that society. When we compare this circulation with that reported a year ago, namely, 1,104, the increase is most encouraging.

With regard to advertising, the amount of paid advertising in the September, 1913, number of the JOURNAL is fourteen pages. This feature has remained almost stationary, it having been found most difficult to obtain advertising while the circulation remained small. For this reason it is clear that until the subscription list of the JOURNAL is enlarged we cannot count upon any greatly increased income from the advertising pages. No effort is being spared, however, to enlist the support of the various commercial and other agencies which may legitimately use the advertising pages of the JOURNAL and which may expect to obtain benefit therefrom.

The financial operations of the JOURNAL are contained in the report of the TREASURER of the Association, a copy of which is attached hereto.

In the opinion of the editorial staff the future prospects are most promising if sufficient financial support for the JOURNAL can be assured until it is placed upon a self-supporting basis. After careful reflection, we are of the opinion that if the JOURNAL is to be continued along its present lines it would be wise to raise a fund of at least $4,000 to insure its successful operation for the ensuing year. This would enable your committee to carry on our work without embarrassment. The response which has already been received from those whom we have approached on this matter leads us to suppose that such an amount can be secured without undue difficulty. I trust that your committee will recommend such a step and that the Association will endorse it and coöperate to its successful conclusion.

Finally, may I take this opportunity to express on behalf of my editorial associates and myself our deep appreciation of the unfailing and thoroughly cordial support which your committee has given throughout the year, a support without which the successful publication of the JOURNAL would have been impossible.

Respectfully submitted,

LIVINGSTON FARRAND,
Editor.

REPORT OF COMMITTEE ON JOURNAL.

Your committee in presenting its report on JOURNAL has to express its sense of responsibility it has undertaken, establishing a journal worthy of the traditions and of the position which the American Public Health Association holds as the exponent of the most advanced scientific thought and of the experience of the leaders in public health and state medicine in the four countries of North America represented by it.

The growth of the Association from the first gathering of a few enthusiasts forty-one years ago represents the advance from a preceding period of empiricism to one in which science has laid the foundations of public health on a sane and sound foundation, and today we find associated not only physicians but also the trained exponents of bacteriology, bio-chemistry, engineering, municipal hygiene, statistics, and scientific philanthropy. The borders of our science have become enlarged until they have come to embrace almost every phase of human activity, whether physical, educational, social, industrial, engineering, or literary. The evolution has been very remarkable, and with it the position of workers in the field has been enlarged, while their scientific and public responsibilities have been increased. To meet the duties and maintain the dignity of our enlarged position, we have had to develop a means of constant communication with each other and the public.

Until very recent years we had to be satisfied with an annual meeting and the issue of our transactions, more or less late, to members; but it was long felt that some more frequently appearing exponent of every day, living, vital public health work was essential if we were going to meet the demands of those who are laboring to make public health a profession and through such to increase our influence with the public, which is at once needing and demanding instruction, and upon which in the end we must depend for the coöperation which will alone make the evolution of public health possible.

The history of how we have attempted to accomplish this is known to the older members of the Association, and the difficulties which we have met and overcome are known to many.

How your present Journal Committee has succeeded during the past eighteen months or more, those who have been receiving regularly the AMERICAN JOURNAL OF PUBLIC HEALTH have had illustrated. Had your committee had to deal only with the papers as published ten years ago, when we had only the bacteriological and chemical sections, its task would have been an easy one, but it has had to receive, adjudge, edit, and print the papers of five distinct sections as well as the papers of our general sessions. It became necessary to organize a staff through whom this work might be done. It had to find and select men highly trained

in scientific, literary, and business methods, and furnish them with facilities to work. It had to not only finance the printing expenses but it had also to pay a staff, (small salaries it is true) and provide for the many details which a business office demanded.

But, what has been much harder and equally necessary, it has had to direct and encourage its editors and other officials to initiate and develop methods for increasing the membership of the Association as the only means whereby any increased income for its work was possible, and this with a journal of necessity becoming yearly more scientific and technical.

Some will remember that it is but a few years ago when many thought we ought to be so exclusive that even the Commissioner of Health for a whole state was not to be eligible for full membership in the Association until he had served an apprenticeship of three years. Now what has been done? It took a year to drum up our old membership and some 300 had finally to be eliminated from the list. It was not possible for the staff of the JOURNAL before the last annual meeting to get more than organized and to issue the JOURNAL and find its bearings. Since then to a corrected list of *bona fide* members have been added about 400 more, or 50 per cent. Where to find such members and how to obtain them without for a moment lowering the high standards set up, we must ask Professor Gunn, our active Secretary and Managing Editor. From him I learn that during the past three months he has written to or replied to a thousand personal letters, in addition to having signed 2,000 circular letters and weekly, almost, the Committee of Seven have had lists of new members sent on to adjudicate upon.

Much of the office expenditure has been in clerical work for this purpose, and when it has resulted in a direct outcome of $2,000 added to our finances, most will agree it has been money well spent.

But there was another direction in which the committee felt it must work, and that was to increase in other directions the circulation of the JOURNAL. A year's trial has shown that it was impossible to get large and valuable advertisement without a larger circulation, and through the persistent efforts we have been able to send out to likely subscribers.

And what is the JOURNAL today? 1st. It has enlarged its page and published nearly more than double what it previously did of papers. It has supplied a limited number of editorials to allow the papers of members to be printed, but has had much additional time and labor spent upon publishing a monthly review of the best selected health notes, giving a summary of the up-to-date doings in the world of public health.

2nd. It has given the best literary and editing ability to the JOURNAL, until it more than equals any other of its class here or elsewhere.

3rd. With a very moderate amount for editorial salaries and office staff, we have seen our officers increase the permanent membership over 50 per cent. and our circulation over 150 per cent., giving us a large permanent increase of funds from these two sources. From the reasons indicated the returns from advertisements have not greatly increased; but the results must improve with an enlarged circulation.

But it is apparent that apart from the labor to obtain these results your committee has had to find funds for its officials to work with. The authority given to use the trust funds as a security to bank with has been taken advantage of and the available assets for financing are able to make up what we have drawn against our trust fund that we would be sailing on an even keel.

If we are to keep our membership at $3 and our JOURNAL at $2, and if we are to remain overscrupulous and be purists in the matter of advertisements, our future must depend almost solely upon the enthusiasm and devotion of the apostles and devotees of public medicine, rather than to any rapid increase such as that of the ordinary popular journal. But your committee is well pleased, if not content, with the progress made.

Public medicine is only in its adolescence; ten years ago it was in its childhood. We are both its children and its parents. Shall we exert our best efforts as children to live up to our

opportunities? Shall we as parents accept our responsibilities and sacrifice something for the children upon whom the future lives and happiness of our people in four countries depend? Your committee has decided to call upon all those who are interested and patriotic enough to work for these ends, to build up guarantee funds to make its work easier and to insure success to your JOURNAL.

It is proposed to widen the list through several committees, to take it up actively among the several State, Federal, Municipal and Social Services. Your committee counts upon the support, even at some sacrifice, of members of our Association whose wealth has the public weal and whose devotion has even meant sacrifice.

Respectfully submitted,

PETER H. BRYCE,
Secretary.

Moved and seconded that the reports be approved as read. Carried.

The following papers were then read:

Occupational Diseases and Legislative Remedies. Dr. John B. Andrews, American Association for Labor Legislation, New York City.

Industrial Hygiene, A Neglected Field of Public Health. Dr. C. T. Graham-Rogers, State Department of Factory Inspection, New York City.

Industrial Lead Poisoning. Dr. Alice Hamilton, Hull House, Chicago, Ill.

Good Illumination, An Important Factor in Public Health and Safety. Mr. Clare N. Stannard, Denver, Col.

Modern Methods of Fly Fighting. Dr. E. C. Levy, Chief Health Officer, Richmond, Va.

The Social Survey and Public Health. Mr. Shelby M. Harrison, Department of Surveys and Exhibits, Russell Sage Foundation, New York, N. Y. (Read by title.)

Coöperation and Efficiency in Rural Health Work. Mr. John Ritchie, Jr., Massachusetts Institute of Technology, Boston, Mass. (Read by title.)

Hygiene and Physical Education: A Thesis on the Teaching of Hygiene and the Facilities of Sanitary Inspection in Schools. Eugene C. Howe, Ph.D., Wellesley College, Mass. (Read by title.)

Practical Points in Railway Sanitation. Dr. A. E. Campbell, Health Officer, Illinois Central R. R., Chicago, Ill.

The meeting then adjourned.

SELSKAR M. GUNN,
Secretary,

RUDOLPH HERING,
President.

FIFTH SESSION.

The meeting was called to order at 2 p. m., September 11, the President in the Chair.

The following resolution, passed unanimously by the Section on Vital Statistics and referred to the Executive Committee, which unanimously approved of it, was referred to the Association:

"That, sensible of the ravages wrought by syphilis and gonococcus infections in the health of the community, and deploring the inadequacy of existing facilities for the checking of their dissemination, the American Public Health Association calls upon state, provincial and municipal governments of all the countries here represented: (1) to institute a system of confidential notifications of these diseases to a sanitary authority, where such notification does not already obtain; (2) to conduct a systematic educational campaign for the limitation

of the spread of these diseases; and (3) to make proper provision for the diagnosis and treatment of all cases of syphilis and gonococcus infections not otherwise provided for."

The resolution was unanimously adopted.

The following resolution, passed unanimously by the Section on Vital Statistics and referred to the Executive Committee, which unanimously approved of it, was referred to the Association:

"*Resolved:* That we recommend the enactment of laws prescribing the manner of keeping the morbidity records of all institutions for the care of the sick, and requiring the filing of transcripts of so much of said records as may be necessary for statistical purposes, with the proper registration officials of the several jurisdictions in which such institutions are located."

The resolution was unanimously adopted.

The Secretary presented the following report of a Special Committee appointed by the Executive Committee to consider the question of delegate membership to the Association:

Report of Special Committee.

To the Executive Committee of the American Public Health Association:

The Special Committee appointed to consider the suggestion made by Dr. Lee K. Frankel of New York in regard to delegate membership and annual dues respectfully recommend that such steps be taken as may be necessary to amend the constitution and By-laws as follows:

I. Constitution. Amend article III, Section 7, by inserting in line 3, after the words "engaged in" the words "or interested in."

II. By-laws. Amend Chapter 7 of the By-laws by striking out the first paragraph thereof and substituting therefor the following: "The annual fee for an individual member (other than an honorary member who pays no fee and for a delegate member who is chiefly engaged in the conservation and promotion of public health) shall be three dollars ($3). All such members shall be entitled to receive the papers, reports, and transactions of the Association upon the payment of a subscription price of two dollars ($2) per annum.

The annual fee for a delegate member, who is not engaged chiefly in the conservation and promotion of public health, shall be not less than twenty-five ($25) nor more than one hundred ($100) dollars. Each such member shall be entitled to receive one copy of the papers, reports, and transactions of the Association for each five dollars ($5) of annual membership fee paid by him.

For the Committee,

Homer Folks,
Chairman.

The Chair announced that the proposed amendment to the Constitution would have to lie over for one year in accordance with the constitution, but that the proposed amendment to the By-laws could be taken up after one day had elapsed.

The following resolution, which was introduced in the Section of Public Health Officials, carried by that section and referred to the Executive Committee, and which had been adopted by that body, was referred to the Association for its approval:

"In consideration of the large amount of time and attention given to the subject of milk standards by the 'Commission on Milk Standards' which was appointed by and financed

by the generosity of the New York Milk Committee and in further consideration of the fact that the commission is made up almost wholly of members of this Association: Therefore be it *resolved*,

"1. That the A. P. H. A. approves of the establishment of uniform milk standards and a classification of milks such as are embodied in the report of the Commission on Milk Standards appointed by the New York Milk Committee and published in the U. S. Public Health Reports August 22, 1913.

"2. That the A. P. H. A. urges the adoption of these standards and classification by municipalities so far as local conditions make them possible."

The resolution was adopted.

The following papers were then read:

The Venereal Problem. Dr. J. H. Landis, Health Officer, Cincinnati, Ohio.

The Relation of the Health Officer to the Venereal Diseases. Dr. Charles F. Bolduan, Department of Health, New York City.

Relationship of Public Health Work to Race Degeneracy. Dr. J. A. Kellogg, Battle Creek, Mich.

Public Health Topics in a College Course on General Biology. Prof. Francis Ramaley, University of Colorado, Boulder, Col.

The Prevention of Typhoid Fever in Rural Districts. Dr. A. W. Freeman, Assistant Commissioner, State Board of Health, Richmond, Va.

What Good Housing Means. Mr. John Ihlder, National Housing Association, New York City. (Read by title.)

An Investigation into the Relationship of Indoor Temperature and Humidity in the Winter to Infant Mortality from Respiratory Diseases. Dr. Donald B. Armstrong, Department of Social Welfare, A. I. C. P., New York City. (Read by title.)

Sanitation in Cuba: Its Progress. Dr. Jorge LeRoy, Havana, Cuba. (Read by title.)

The meeting then adjourned.

SELSKAR M. GUNN, *Secretary*, RUDOLPH HERING, *President*.

SIXTH SESSION.

The meeting was called to order at 9 a. m., September 12, Vice-President Batt in the Chair.

The Secretary presented the Report of the Advisory Council:

MEETING OF THE ADVISORY COUNCIL.

The Advisory Council of the American Public Health Association was called to order by the Secretary at 12.40 p. m., Antlers Hotel, September 11, 1913.

Dr. W. R. Batt was nominated and elected chairman, and Dr. Wm. F. Snow as secretary. The following list of officers for 1914 were nominated by ballot for the office stated immediately preceding his name:

For President, Dr. William C. Woodward, Washington, D. C.

For First Vice-President, Dr. John F. Anderson, Washington, D. C.

For Second Vice-President, Dr. Mario Lebredo, Havana, Cuba.

For Third Vice-President, Dr. C. J. Hastings, Toronto, Canada.

For Secretary (to serve for two years), Prof. S. M. Gunn, Boston, Mass. (Treasurer holds over.)

For Executive Committee (each to serve two years), Dr. P. M. Hall, Minneapolis, Minn.; Dr. M. Richardson, Boston, Mass.; and Dr. J. Rankin, Raleigh, N. C.

For Executive Committee to fill unexpired terms of Dr. J. F. Anderson (resigned) and Dr. N. G. McKay (deceased), Mr. Homer Folks, New York, Dr. J. A. Amyot, Toronto, Canada.

Invitations for 1914 meeting were received from Jacksonville, Buffalo, Nashville, Asheville, Denver, Cincinnati, Atlantic City, Philadelphia, St. Paul, New York, St. Louis, Niagara Falls, Charleston, S. C. (California for 1915.)

On ballot it was voted that Jacksonville be recommended to the Association as the place of the 1914 meetings. On motion, this selection was made unanimous.

W. F. Snow, *Secretary.* Wilmer R. Batt, *Chairman.*

Moved and seconded that the Secretary be instructed to cast the ballot of the Association for the respective nominees. The motion was carried and the officers were declared elected.

Moved and seconded that the action of the Advisory Council be made the action of the Association so far as the next place of meeting was concerned. Carried.

The Secretary then read the amendment to the By-laws which had been presented to the Association the day before for action. The amendment was as follows:

"II. By-laws. Amend Chapter 7 of the By-laws by striking out the first paragraph thereof and substituting therefor the following: 'The annual fee for an individual member (other than an honorary member who pays no fee) and for a delegate member who is chiefly engaged in the conservation and promotion of public health, shall be three dollars ($3). All such members shall be entitled to receive the papers, reports, and transactions of the Association upon the payment of the subscription price of two dollars ($2) per annum.

"The annual fee for a delegate member who is not engaged chiefly in the conservation and promotion of public health shall be not less than twenty-five ($25) nor more than one hundred ($100) dollars. Each such member shall be entitled to receive one copy of the papers, reports, and transactions of the Association for each five dollars ($5) of annual membership fee paid by him."

It was moved and seconded that the By-laws be amended as suggested by the committee. Carried.

Dr. C. L. Wilbur moved the adoption of resolutions relative to the death of Dr. John S. Billings, former President of this Association, and asked leave to draft such resolutions when he had the necessary data available, with the dates and facts concerning his connection with the Association and with the development of some of the work with which this Association is concerned, and that the resolution, when finally prepared, should represent the action of the Association. The motion was seconded and carried.

Dr. G. W. Goler presented a resolution with regard to the Rock Island Line R. R., which was referred to the Executive Committee for action.

The following papers were then read:

The Present Status of Pasteurization. Mr. S. H. Ayers, Bureau of Animal Industry, Washington, D. C.

The Influence of the Financial Stimulus in the Improvement of City Milk Supplies. Prof. H. A. Harding, University of Illinois, Urbana, Ill.

Hindrances to the Extension of Uniform Methods for Vital Statistics in the United States. Dr. Cressy L. Wilbur, Bureau of the Census, Washington, D. C.

Anti-Typhoid Vaccination. Dr. Joseph H. Townsend, Secretary, State Board of Health, Hartford, Conn.

Yellow Fever in Mexico. Dr. Eduardo Liceaga, Superior Board of Health, Mexico City, Mexico.

Cremation vs. Earth Burial, from a Sanitary Standpoint. Dr. E. A. Carr, State Board of Health, Lincoln, Neb.

Treatment of a Case of Lupus Vulgaris and Pulmonary Tuberculosis. Dr. William J. Manning, Medical Officer, Government Printing Office, Washington, D. C.

A Recent Contribution by the Federal Government to Health Conservation and Preventive Medicine. Dr. Arthur Reed Perry, U. S. Department of Labor, Washington, D. C. (Read by title.)

The Public School Hygiene Service of Mexico. Dr. Alfonso Pruneda, Mexico City, Mexico. (Read by title.)

Dr. G. W. Sumner moved that Doctor Manning's paper be referred to the Executive Committee with the idea of appointing a committee to investigate and coöperate with Doctor Manning. The motion was carried.

The meeting then adjourned.

SELSKAR M. GUNN,
Secretary.

WILMER R. BATT,
Vice-President.

CLOSING SESSION.

The meeting was called to order at 9 p. m., September 12. In the absence of the President and Vice-Presidents, Dr. W. C. Woodward was elected Chairman for the meeting.

The Executive Committee reported the election of the following gentlemen to the Committee of Seven: Dr. Peter H. Bryce, Ottawa, Canada; Mr. Homer Folks, New York; Dr. Henry D. Holton, Brattleboro, Vt.; Dr. Jesus E. Monjaras, Mexico City.

The Executive Committee also announced the election of the following gentlemen to serve on the Committee on Journal: Dr. H. T. Holton, Dr. Peter H. Bryce and Dr. Gardner T. Swarts, and the election of Prof. S. C. Prescott and Dr. M. W. Richardson to serve on the Membership Committee.

The following resolutions prepared by the Section on Vital Statistics and referred to the Executive Committee and, having been approved of by that body, were referred to the Association:

"WHEREAS the timeliness of vital statistics constitutes one of their greatest assets to sanitation, be it resolved that the Director of the Census of the United States, and the corresponding officers of the other countries represented in this Association, be respectfully requested to make available at the earliest opportunity revised death-rates for the past decade based upon the recent census, of statistics relating to occupational mortality, of other statistical inquiries into the individual causes of mortality, and that a registration area of births be established as an important corollary to the registration area of deaths."

The resolution was adopted.

"*Resolved:* That the section on Vital Statistics approve the revised Standard Birth Certificate and recommend its adoption wherever practicable by Boards of Health, Registrars and other registration officials."

The resolution was adopted.

"The Model State Law for Morbidity Reports meets with the cordial approval of the members of the Committee on Resolutions of this section; nevertheless, it feels that the support of other kindred organizations would be of great benefit in aiding the adoption of this law by state and possibly provincial boards of health and health officers. Be it therefore *resolved*, That a committee be appointed to coöperate with other interested agencies in the drafting of a Model State Law for Morbidity Reports."

The resolution was adopted.

Report of the Laboratory Section.

The Laboratory Section begs to announce the election of officers as follows:

Chairman, Prof. Edward Bartow.
Vice-Chairman, Prof. C.-E. A. Winslow.
Recorder, Dr. Allen W. Freeman (2 years).
Secretary, Dr. D. L. Harris, elected last year for two years.
Elected members of Council, Dr. F. P. Gorham, Mr. J. O. Jordan, Dr. G. F. Ruediger, Dr. A. P. Hitchens, Dr. Gordon Bell.

Report of the Section on Vital Statistics.

The Section on Vital Statistics begs to announce the election of officers as follows:

Chairman, Prof. W. F. Wilcox.
Vice-Chairman, Dr. E. Liceaga.
Secretary, Dr. Louis I. Dublin.

Report of the Section of Public Health Officials.

The Section of Public Health Officials begs to announce the election of officers as follows:

Chairman, Dr. C. V. Chapin.
Vice-Chairman, Dr. C. J. Hastings.
Secretary, Dr. E. C. Levy (held over).
Recorder, Dr. A. S. Fell.
Elected members of Council, Dr. P. M. Hall, Dr. G. H. Sumner, Dr. James Roberts, Dr. Jesus Monjaras, Dr. J. A. Hayne.
Representative in Advisory Council of A. P. H. A., Dr. P. M. Hall.

Report of the Sanitary Engineering Section.

The Sanitary Engineering Section begs to announce the election of officers as follows:

Chairman, Mr. R. S. Weston.
Vice-Chairman, Mr. G. W. Fuller.
Secretary, Dr. H. D. Pease.
Member of Advisory Council, Dr. H. D. Pease.
Elected members of Council, Col. J. L. Ludlow, Mr. Rudolph Hering, Mr. Langdon Pearse, Mr. W. L. Stevenson, Mr. Paul Hansen.

Report of the Sociological Section.

The Sociological Section begs to announce the election of officers as follows:
Chairman, Mr. Lawrence Veiller.
Vice-Chairman, Dr. H. E. Dearholt.
Secretary, S. Poulterer Morris.
Committee on Plan and Scope, Dr. Lee K. Frankel.

Dr. Peter H. Bryce presented the following resolution:

"That the American Public Health Association desires to express its appreciation of and thanks for the kindness and courtesies extended to it and its many members and those accompanying them, not only to the official bodies who are especially interested in the work of the Association, but also the many private citizens, who have extended them hospitality and opened their homes to the members of the Association and their friends. Amongst those to whom the thanks of the Association are especially due are the Mayor and City Council of Colorado Springs, the Chamber of Commerce, the County Medical Society, the City Board of Health, and especially to its Health Officer, Doctor Gillett, for their untiring efforts to promote the work and entertainment of the Association; to Dr. Rutledge and the Directors of the Modern Woodmen of America for their splendid entertainment; and to the staffs of the newspapers of Colorado Springs and Denver for their unusual and unremitting interest in the work of this Association in the publication of the papers and proceedings of the Association.

The resolution was adopted by a rising vote.

The Association then adjourned.

Selskar M. Gunn, *Secretary.* William C. Woodward, *Chairman.*

NEW MEMBERS.

Names of persons elected at the Colorado Springs meeting of the Association or in the interim from the Washington meeting, by action of the Committee of Seven:

Alden, Arthur M., Iowa City, Iowa.
Alsberg, Carl Lucas, Washington, D. C.
Andrews, John B., New York City.
Armstrong, Donald Budd, M. D., New York City.
Arnold, Frank, Johnstown, Pa.
Askew, Edward R., M. D., Hugo, Okla.
Babbitt, H. E., Columbus, Ohio.
Ballenger, T. D., Princeton, N. J.
Begg, Robert B. H., Blacksburg, Va.
Bensel, Walter, M. D., New York City.
Bentley, David Benjamin, M. D., Sarnia, Ont.
Biggs, Hermann B., M. D., New York City.
Bierring, Walter L., M. D., Des Moines, Iowa.
Birdsall, Lewis Isaac, M. D., Minneapolis, Minn.
Blakeslee, Walter H., M. D., Philadelphia Pa.
Boyd, Mark F., M. D., Boston, Mass.
Brown, Hugh A., Washington, D. C.
Brown, Luther A., M. D., Portland, Me.
Browning, Charles C., M. D., South Pasadena, Cal.
Bruckmiller, Frederick W., Lawrence, Kansas.
Bryant, Arthur P., Clinton, Iowa.
Burnett, C. T., M. D., Boulder, Col.
Campbell, Albert E., M. D., Chicago, Ill.
Cannon, Wilbur F., Denver, Col.
Chadsey, Mildred, Cleveland, Ohio.
Chidester, Walter S., Miraflores, C. Z.
Clore, Lex B., Indianapolis, Ind.
Codding, Edwin H., New Rochelle, N. Y.
Coffin, Theodore, Katonah, N. Y.
Cogswell, William F., M. D., Helena, Mont.
Corwin, R. W., M. D., Pueblo, Col.
Cox, Robert L., New York City.
Crankshaw, Charles W., D. D. S., M. D., Newark, N. J.
Culbertson, Doctor, Dauphin, Manitoba.

Daniels, Herman P., M. D., Colorado City, Col.
Davidson, Doctor, Cartwright, Manitoba.
Davis, E. T., Chicago, Ill.
Davis, Lewis, Detroit, Mich.
DePree, Robert M., Holland, Mich.
Dittoe, William Henry, Columbus, Ohio.
Dungan, Samuel O., Indianapolis, Ind.
Dutton, Charles E., M. D., Minneapolis, Minn.
Eaton, Charles A., M. D., Portland, Maine.
Edgerton, E. Otis, M. D., Arcadia, La.
Edwards, William H., New York City.
Edmison, John Henry, M. D., Brandon, Manitoba.
Edwards, James F., M. D., Pittsburgh, Pa.
Everhardy, Jacob L., M. D., Leavenworth, Kansas.
Falk, Ralph, M. D., Boise, Ida.
Ferguson, Franklin A., M. D., Portland, Maine.
Fiedler, Otho, M. D., Sheboygan, Wis.
Fowler, Bertha W., Colorado Springs, Col.
Fowler, George S., New York City.
Freas, Raymond, Baltimore, Md.
Frost, Edward W., Colorado Springs, Col.
Fuller, James E., Colorado Springs, Col.
Fritze, Lucius A., Moline, Ill.
Fuertes, James H., New York City.
Godfrey, Hollis, Ph. D., Philadelphia, Pa.
Grant, William, Boston, Mass.
Greenfield, Myrtle, Lawrence, Kansas.
Gudeman, Edward, Ph. D., Chicago, Ill.
Gundrum, Frederick F., M. D., Sacramento, Cal.
Hamilton, Alice, Chicago, Ill
Hamilton, Herbert C., Detroit, Mich.
Hartloff, Charles Wm., M. D., Evansville, Ind.
Handford, Peter Oliver, M. D., Colorado Springs, Col.
Harris, Roland, C., Toronto, Canada.
Hastings, Edwin George, Madison, Wis.
Hatfield, Charles J., M. D., Philadelphia, Pa.
Hayes, Oscar, M. D., Denver, Col.
Hazlehurst, James N., Atlanta, Ga.
Hess, Alfred, M. D., New York City.
Hidy, Klore W., M. D., Indianapolis, Ind.
Higgins, Lafayetts, Des Moines, Iowa.
Hindman, Sims S., M. D., Milledgeville, Ga.
Hoad, William C., Ann Arbor, Mich.
Holden, George W., M. D., Denver, Col.
Hood, Charles H., Boston, Mass.
Horton, Suton, New York City
Horton, Theodore, Albany, N. Y.
Hoyt, Robert N., Wellesley, Mass.
Huckle, Clarence, Washington, D. C.,
International Health Commission, Washington, D. C.
Johnson, Ingrid (Miss), Chicago, Ill.
Jones, William, M. D., Aurora, Ill.
Kenaston, Hampton Ray, M. D., Bonesteel, S. D.
Kistler, J. M., M. D., Minneapolis, Minn.
Klotz, Oskar, Pittsburgh, Pa.
Kopf, Edwin, W., Newark, N. J.
Kurk, Fred William, Louisville, Ky.
Kusel, George C., M. D., Philadelphia, Pa.
Lathrop, Julia C., Washington, D. C.
Laughlin, William Raymond, M. D., Chicago, Ill.
Leake, James P., M. D., Washington, D. C.
Lee, Richard Edwin, Meadville, Pa.
LeFeber, John, Milwaukee, Wis.
Leland, Rasco G., M. D., East Leroy, Mich.
Looney, Robert N., Prescott, Ariz.
Lower, Theodore A., M. D., Ottawa, Ont.
Lyster, Major William J., Washington, D. C.
McKerrihan, Sample B., Portsmouth, Ohio.
McKesson, Charles L., Colorado Springs, Col.
Marcussen, William H., Nichols, N. Y.
Mason, E. Marvin, M. D., Birmingham, Ala.
Maurer, Otto, New York City.
Mercur, William H., M. D., Pittsburgh, Pa.
Miller, Lucas A., Colorado City, Col.
Minnick, James, Chicago, Ill.
Morgan, H. G., M. D., Indianapolis, Ind.
Morgan, John W., M. D., Denver, Col.
Moncrieff, John Thomas, M. D., Columbus, Ga.
Mudge, Courtland C., Providence, R. I.
Mullowney, John J., M. D., Harrisburg, Pa.
Murphy, Lyman C., Chicago, Ill.
Nasbitt, Charles T., M. D., Wilmington, N. C.
Nicol, Norman C., New York City.
Noble, Mary R., M. D., Colorado Springs, Col.
Noland, Lloyd, Birmingham, Ala.
Norton, George H., Buffalo, N. Y.
Nuebling, Emil Louis, Reading, Pa.
Osborne, Frank J., Orange, N. J.

Owen, Edward B., Merrill, Wis.
Palizza, Albert P., Providence, R. I.
Patterson, Francis D., M. D., Philadelphia, Pa.
Perry, Arthur R., Washington, D. C.
Persson, Gustof A., M. D., Mt. Clemons, Mich.
Peters, William H., M. D., Cincinnati, Ohio.
Peterson, C. Gilbert, New York City.
Price, George M., M. D., Brooklyn, N. Y.
Price, William Henry, M. D., Detroit, Mich.
Poucher, Frank C., New York City.
Powers, Luther M., Los Angeles, Cal.
Quimby, E. Frederick, Ancon, C. Z.
Ramaley, Francis, Boulder, Col.
Reeves, Emory W., M. D., Houston Heights, Tex.
Reinochl, John K., Las Cascadas, C. Z.
Rettger, Leo F., New Haven, Conn.
Rich, Edward D., Ann Arbor, Mich.
Rietz, Paul C., M. D., Evansville, Ind.
Robinson, George L., New York City.
Robinson, James E., M. D., Temple, Tex.
Rockwell, Alvin H., M. D., Kalamazoo, Mich.
Rogers, Lore A., Washington, D. C.
Saville, Charles, New York City.
Sayler, Harley L., M. D., Des Moines, Iowa.
Schneider, Edward C., Colorado Springs, Col.
Seabright, John E., Gary, Ind.
Segard, Christian P., Chicago, Ill.
Seeman, W. H., M. D., New Orleans, La.
Schier, Oscar B., Baltimore, Md.
Schmid, H. Ernest, M. D., White Plains, N. Y.
Schweitzer, Ada E., M, D., Indianapolis, Ind.
Singer, William F., M. D., Pueblo, Col.
Shaw, George H., Brooklyn, N. Y.
Slaughter, George, Brooklyn, N. Y.
Slee, Arthur M., Swiftwater, Pa.
Smith, Ernest E., M. D., New York City.
Smith, J. Waldo, New York City.
Spear, Walter E., New York City.
Spencer, Caroline E., M. D., Colorado Springs, Col.
Stevenson, Albert Fletcher, Washington, D. C.
Stone, Murray C., Jefferson City, Mo.
Sumner, Guildford H., M. D., Des Moines, Iowa.
Sweet, Albert W., Providence, R. I.
Talbot, Arthur N., Urbana, Ill.
Taylor, Joseph E., M. D., Tallahassee, Fla.
Taylor, Paul E., New York City.
Tenney, Elmer S., M. D., Manila, P. I.
Thomas, Arthur H., Haverford, Pa.
Tinsman, Joseph A., Philadelphia, Pa.
Tlusty, Anthony, Cedar Rapids, Ia.
Torrance, Frederick, Ottawa, Can.
Tully, Edward J., Madison, Wis.
Van Blarcom, Carolyn C., New York City.
Waite, Herbert H., Lincoln, Neb.
Waldo, Richard H., New York City.
Weldon, Luther J., M. D., Denver, Col.
White, Benjamin, Brooklyn, N. Y.
White, Joseph H., Pittsburgh, Pa.
White, Wm. C., M. D., Pittsburgh, Pa.
Williams, Sherman, M. D., Denver, Col.
Wills, F. A., Philadelphia, Pa.
Wilson, Dunning St., M. D., Louisville, Ky.
Winslow, Paul V., M. D., Wappingers Falls, N. Y.
Witmer, Albert F., M. D., Freeport, N. Y.
Wood, E. M., M. D., Winnipeg, Can.
Woodsworth, Donald W., M. D., Tulsa, Okla.
Wright, Herbert L., M. D., Hugo, Okla.
Young, Anna A., M. D., New York City.
Young, Albion G., M. D., Augusta, Maine.
Zetek, James, Ancon, C. Z.

HEALTH DEPARTMENT REPORTS AND NOTES.

REPORTS.

Brookline, Massachusetts.

Brookline presents a well prepared report for the year ending December 31, 1912.

Following the list of officials and employees of the Board of Health is given the introductory report of the Board as a whole which begins with the financial statement. This is an itemized account under general heads showing appropriations and expenditures for 1912, recommendations for 1913, and a comparison with expenditures for 1910 and 1911. This latter makes the statement of much more interest, as it shows where the increase of expenditures from $59,741.85 in 1911, to $69,464.64 in 1912 has been made.

Several pages are given to the revised health regulations of the town, including ordinances under such headings as, communicable diseases, disinfection, waste materials, garbage, foodstuffs, milk, vaults, cesspools, etc. Also a list of the notifiable diseases for both people and animals is printed.

The report of the agent of the Board of Health shows in a concise manner the actual work that has been carried on. The total number of deaths, exclusive of still births and deaths of non-residents, with a population of 30,000 as estimated by the town clerk, gives a mortality of 352, or 11.73 per 1,000 inhabitants. The number of deaths from infectious diseases was comparatively low, although the number of cases of typhoid fever and tuberculosis appears to be somewhat increased.

During the year a free tuberculosis dispensary was established in compliance to the state law, a room in the town hall being used for the purpose. This work was in charge of a doctor and a nurse and their report shows that much good work has been done.

Brookline has done a large amount of work along the lines of mosquito suppression, the results of which are shown by the fact that only four cases of malarial fever were reported during the year 1912. A regular system of sanitary policing, drainage and filling and petrolizing has been carried on. Included also under this same work is the fly suppression, both inspections being carried on jointly. Manure piles were cleaned up; manure pits, garbage receptacles and privy vaults were made fly tight and a large number of stables were provided with fly traps which appeared to be more or less useful. However, there still appears to be much work to be done.

The poorest section of the entire report is that on vital statistics. While full information is given with regard to each death recorded, the information would be much more useful if it were classified according to the international classification. It is to be hoped that a town as progressive along most lines as Brookline is will adopt the best recognized methods of recording vital statistics.

Clinton, Massachusetts.

Among the first to adopt the form of health report recommended by the Committee on Uniform Health Reports appointed by the Massachusetts Association of Boards of Health is the Board of Health of Clinton, which has recently issued its report for the year 1913, and for the fiscal year ending January 31, 1914. Although Clinton has a

population of only 13,000 its annual report is one of the best in the state and indicates an extremely progressive and efficient force of health workers. The new standard form has been used with good results and is especially interesting as a demonstration of the applicability of the form to the needs of the smaller cities.

The total expenditures for the year, including refuse removal, hospitalization of contagious diseases, and money paid to various tuberculosis sanatoria for the care of cases, amounted to $5,764.42 or about 54 cents per capita. The death-rate was 12.0 per thousand, the lowest figure among the ten years recorded; the birth-rate, 25.77; and the infant mortality rate, .90 per 1,000 births. The contagious disease situation was apparently good except for a measles epidemic which held over from the previous year. There were only eight cases of typhoid and fifteen of diphtheria with one death from each.

Among the other reports those of the milk inspector, the inspector of provisions and the plumbing inspector are especially creditable, not only in respect to conditions and methods reported but also in the style of report, which should help in educating the public as well as being of interest to other health officers. The reports of vital statistics under the new system present an excellent appearance.

Erie, Pennsylvania.

The Board of Health of the city of Erie, Pa., submit their report for the calendar year 1912. The report may de divided into two main divisions, the first part containing the reports of the president of the Board and the health officer, the last part being given over to statistical tables. The mortality tables in which the International classification is used and the tables showing comparisons for a long series of years are very valuable. Of interest also are the tables showing the relation of cases to deaths for various diseases which are not so often given in reports.

The president's report summarizes the needs of the department for the future while the health officer's report gives the work that has been carried on the past year. Apparently the health officer has had a good deal to contend with. There was an undue amount of communicable disease with an outbreak of diphtheria and one of scarlet fever. The opinion as set forth in this report urging the necessity for placing the the financial standing of the health department on a proper business basis is quite evident. The financial statement is put near the end of the volume and has only five items in it, one of which is a deficit of $5,279.22. Proper health department work cannot be carried out under such conditions, which as the report says are bordering on bankruptcy for the greater part of the year.

The birth-rate as set forth in the health officer's report, based on an estimated population of 71,000 was 27.72 per 1,000 inhabitants, while the death-rate was 14.62 per 1,000 inhabitants. Of these deaths fully one fourth of all the fatalities are included in the list of preventable diseases.

The health officer ascribes the low death-rate from diphtheria and recovery with few unpleasant sequelæ, to be undoubtedly due to the early use of antitoxin in larger doses than formerly has been the custom. The initial dose used was double that formerly used.

Other sections of this report describe the work being done by the municipal hospital, the question of food supplies and milk inspection. This latter work is carried on by means of dairy inspection supplemented by the Lorenz Dirt Test. The majority of the milk dealers and dairies are classified as having only fair or poor sanitary arrangements. It is apparent that more strenuous means than simply the dumping of condemned milk into the gutters is needed.

On the whole the report is good but there seems to be need of a better organization of the department with a larger working force, which can be separated into various divisions responsible for different parts of the work. There has apparently been a plan set forth for such a reorganization and it is to be hoped that in the near furure it may be adopted.

Hornell, New York.

Hornell is a city of only 14,000 population but its report for the year 1913 would put to shame the reports of many a city of 40,000. The city spends only 26 cents per capita through the board of health (three cents of this going for the care of the insane), and its plumbing inspector and sanitary inspector are the most highly salaried employees, but it is very fortunate in having a man with such progressive ideas and evident ability as Dr. J. A. Conway for health officer.

The city, during 1913, had a death-rate of 15.8 (14.8 corrected for non-resident deaths). a birth-rate of 17.3 and an infant mortality rate of 97.9 per thousand births. The chief cause of death under tha international system of classification was apoplexy, and senility was second, a possible error in reporting. Of three deaths from typhoid, two were of non-residents. Twenty-six cases of typhoid occurred in the city but eight of these were apparently imported. Tuberculosis shows a mortality of 42.3 per 100,000.

The report of the sanitary inspector shows 5,439 inspections and 614 reinspections made during the year. The visiting nurse reports a total of 2,050 visits made, including 444 visits to the 23 cases of tuberculosis registered with the board of health and as many visits to the homes of school children. A bacteriological laboratory is maintained for aid in diagnosing communicable disease.

Among the recommendations for improvements we find the following: the establishment of a county tuberculosis hospital, better supervision of the milk supply, the abandonment of shallow wells, the elimination of unguarded grade crossings, the installation of a hypochlorite plant for the city water supply, the establishment of a municipal slaughter house, free garbage collection for the poor, the employment of another sanitary inspector and of a full-time school nurse.

The entire report gives evidence of up-to-date ideas in all branches and it may be instructive to other health officers as well as to the citizens of Hornell.

Lancaster, Pennsylvania.

The Board of Health of Lancaster submits its report for the year 1913. Lancaster is a city of about 50,000, and, while no rates are given in the report, it it probable that in 1913 its death-rate was about 14 per 1,000, its birth-rate in the neighborhood of 24 and its infant mortality rate the admirable figure of 75.2.

This report uses the international system of classification of causes of death, a happy relief from the custom so common in the smaller cities of Pennsylvania, namely the use of an ancient and unsatisfactory alphabetical classification. The report shows apoplexy as the chief cause of death, with organic diseases of the heart, tuberculosis, and cancer following in order. The contagious disease situation seems to be well in hand, except for chicken-pox and measles, which show a high rate of incidence. An interesting note is the suggestion that eight cases of typhoid were caused by bathing in the river below the sewer outlet.

The milk situation in Lancaster has been greatly improved by taking and testing milk samples every two months and publishing the results in the papers. Dairy inspection is also maintained. General improvements recommended include the creation of the office of meat inspector, better control over sanitary conditions in the city markets, power to control the condition of private alleys, and improved methods of street cleaning.

As far as indicating good conditions and efficient work is concerned the report is successful. No financial statement is included.

Newton, Massachusetts.

The Board of Health of the city of Newton, through its chairman, Dr. F. G. Curtis, presents its report for the year ending December 31, 1912. Newton, which has a population of 41,030 (estimated midyear), is one of the residential suburbs of Boston, many of its citizens being employed in Boston. The death-rate per 1,000 inhabitants for 1912 was 12.52, which was somewhat higher than usual due to a number of factors which, however, do not seem to be further explained. The city appears to have been exceptionally free from communicable diseases, due to the good work of the board of health.

Dr. Curtis is strongly against the keeping of children away from school in which a case of communicable disease has occurred for fear of "catching" the disease. He believes that the closing of schools during epidemics lessens the protective work since the children are then not under the care of the school physician and the case in being missed is apt to infect many more children outside.

The city of Newton expended $25,874.23 during 1912 for health purposes. The work which is being done in return for this expenditure is being well carried out. A close watch is kept on the tuberculosis cases by means of a nurse who spends her time following up new cases and looking after old ones. This nurse also was instructed during the warm weather to report sick babies and give instruction to mothers.

The control of the milk supply of the city appears to be through inspection of dairies alone, as there is no mention of any bacteriological examination.

The statistical tables, particularly those for vital statistics, are of the highest order. The international classification of deaths is used, there being a table of deaths by cause, sex and age periods, and one by cause, color, sex and month. There is also given a table of births, deaths, stillbirths and persons married, with population and rates per 1,000 for the preceding ten years. Of particular interest is a comparative diagram showing the incidence of diphtheria, scarlet fever, measles and typhoid fever for twenty years. Measles shows the greatest variability, with diphtheria next. They seem to run in waves of high and low incidence of approximately four to five-year periods. Typhoid fever has shown a slight decrease while scarlet fever seems to remain about the same. It is interesting to note that by following this plot, particularly in the case of measles, it would not be a very difficult matter ot predict an epidemic.

The report of the city of Newton is to be commended, the work done being of a high order.

DEPARTMENT NOTES.

The Prolongation of Life.

"We commented recently on the increase which has taken place in the mortality at the higher age groups. A consideration of the problem thus presented led Dr. Hermann M. Biggs, more than five years ago, to advocate the regular medical examination of persons over forty-five years of age. Doctor Biggs suggested that when that age was reached an individual should place himself entirely in the hands of a competent medical adviser, consult him at regular intervals, and so learn how to prevent many of the degenerative changes which give rise to this increased mortality. It is gratifying to observe that his suggestion has borne fruit. Under date of December 30, there is announced the formation of a unique corporation, namely, 'A Life Extension Institute,' the express purpose of which is to perform the services just mentioned and so to lengthen human life by the application of modern science. The method to be used is very simple, and is similar to that which is applied to ordinary machinery, namely, inspection and repairs. After the human machine has been carefully inspected, the individual will be advised to see his family

physician, who will be furnished a full statement of the results of the examination, both physical and laboratory. The institute is fashioned somewhat after the Model Homes Association; that is, it is a philanthropy conducted on a self-supporting basis. It is to charge a small fee for its work, and any receipts above cost, including a reasonable return on capital, will be devoted to extending its public usefulness."

Weekly Bulletin, Department of Health of New York, January 17.

A Coöperative Clean-up.

The secretary of the Society for the Betterment of Housing and Living Conditions in Richmond, Va., writing in the *American City* for March, describes the clean-city campaign which took place in Richmond last spring. The campaign was very successful on account of the coöperation of the mayor, the chief of police, the chief health officer, the chief sanitary inspector, the superintendent of street cleaning, the superintendent of schools, and the secretary of the above-mentioned society, and the assistance of the newspapers and school-children.

There was no extra expense incurred by the city government and $40 spent on stationery, printing and postage was paid by citizens. The division of the work among the various city departments and the methods of publicity and the valuable help which came from the children are described in some detail in the article, and the "keep-clean" ordinance, which has since been enacted by the council as a result of the inspiration of cleanliness, is quoted in full.

Vital Statistics in North Carolina.

"In some places in North Carolina the undertakers, doctors and midwives are not reporting births and deaths. They do not seem to know that the new vital statistics law means business. In several of the counties the death- and birth-rates, according to the first month's reports, are so low that they are absurd.

"For instance, the returns from Robeson County for January show an annual death-rate of only 3 per 1,000, whereas, from the death-rate elsewhere, it would seem that it should be at least 24 per 1,000. Word has been sent to all the undertakers, doctors and midwives in Robeson County, and other counties in the same plight, that two weeks will be given them to report all unreported births and deaths, after which a thorough official investigation will be made by the State Board of Health for unreported births and deaths; and that, when such are found, prosecution will be made at once.

"The attorney-general has been consulted on this matter, and he is heartily in accord with the new law. He wants it enforced to the letter. He has asked that all the data for the first half-dozen prosecutions be laid before him, so that he can give them his full attention. After that, he will act as general consultant in such work whenever needed."

Press Bulletin, North Carolina Board of Health.

Chicago's School Dental Dispensaries.

"Chicago, following the lead of New York, Philadelphia, Cincinnati, Detroit, Toronto, and many smaller cities, is now undertaking the care of the teeth, at least in part, of such of its school children as are unable to secure the services of a family dentist on account of the expense involved.

"Three years ago the Public Relations Committee of the Chicago Dental Society provided a volunteer dental inspection service in our public schools under the direction of the supervising dentist of the division of child hygiene of the department of health. They also provided free dental work in three dispensaries equipped by private subscription. In 1912 a Chicago business man and philanthropist generously equipped seven additional dispensaries and has since provided the money to pay ten dental operators. During the year 1913 the dental inspectors examined 26,655 children, finding 24,334 with teeth defects. In the dispensaries there were performed 17,930 fillings, 14,348 extractions and 26,929 treatments.

"The health department appropriation for 1914, for the first time, contains provision for the salaries of operators in ten dental dispensaries."

Bulletin Chicago School of Sanitary Instruction, February 14.

Controlling Measles in the Schools.

"The history of an outbreak of measles in a Darlington school, as recorded by Dr. S. G. Mostyn, M. O. H., in his report for 1912, is worth repeating. Five cases occurred from the 4th to the 9th of October; twenty-six were notified from the 15th to the 24th. During the latter period the children were arranged so that as far as possible the children who had not had the disease were separated from one another by children who had been rendered insusceptible by a previous attack. During the rest of the term only three cases of measles occurred in the school. There were at this time in the school 144 children who were stated not to have had measles, so that the outbreak cannot have come to an end from want of material. Doctor Mostyn adds that during the last term of the year, when a careful record was kept of cases of measles in the schools, 110 cases were notified, but that of these, all but eight were in infant schools, and of the eight, seven were in a school where the conditions are exceptional. This supports the view now generally held, that, in the present conditions, measles does not spread among the elder children in the public elementary schools."

The Medical Officers, February 7.

A Law to Protect Public Morals.

The press service of the North Carolina Board of Health is sending out as a suggestion to law makers of the state the following article:

At a recent meeting of the North Carolina Conference for Social Service it was unanimously voted that a movement should be started to have the next legislature make state-wide the present Guilford County law "for the protection of public morals." The law is briefly explained by Mr. A. W. McAlister as follows:

"1. The enforcement of this law, as in the Stadiem case, makes it impossible for a property owner to rent his property for immoral purposes. A recent newspaper article states that in such cases, where the renting for immoral purposes is persisted in, the property is forfeited to the city; but this is an inaccuracy. It is not forfeited to the city but the owner, besides being subject to the heavy penalties imposed by law, has to give bond that the house will not be used for such purposes within twelve months, and unless he can give acceptable bond, the house is placarded and must remain vacant for a period of twelve months. The enforcement of this law subjects any man who knowingly rents his property for immoral purposes to what amounts to almost confiscation, and, therefore, renders it impossible for him to do it.

"2. It makes it unlawful for any keeper of a house of prostitution to permit any unmarried female under the age of 18 years to remain in such house.

"3. It provides a minute code regulating the dealing in cocaine, opium, and all similar drugs by wholesalers, retailers, doctors, and others.

"4. The statute then provides that the county attorney shall secure from the internal revenue collector the names of all persons who have paid license tax for dealing in intoxicating liquors, and such certified lists are made prima facie evidence that such persons are violating the law against selling intoxicating liquors.

"5. The law also prohibits any from advertising, giving, presenting, or participating in any obscene, indecent, immoral, or impure drama, play, or exhibition, show or entertainment, and provides for the removal of sheriff, police and other officers who fail to perform their duties, for drunkenness, and for other causes rendering them unfit.

"If properly enforced, it ought to be easy to break up gambling, retailing, and the white slave traffic and business in Guilford County, and wherever else it is adopted."

The Common Fork.

After renewing the campaign against the common drinking cup and roller towel the New York City Department of Health is planning to add the free-lunch fork to the prescription list as evidenced in the following clipping from the *Weekly Bulletin* of February 14:

"In this connection it may be stated that the department is also contemplating action

against the use of common forks at the saloon free-lunch counters. Investigation has shown that forks, used by one person in eating, from a common dish, food such as hash, potato salad, sauerkraut, etc., are returned after using to a glass containing some cold water only, to be picked up and used in the same way by succeeding persons. This very personal tool thus comes into more or less intimate contact with the saliva of the mouth and the mucous membrane of the tongue and lips.

"In view of the fact that disease-producing bacteria, some of them a most virulent kind, may be present in secretions of the mouth and throat, it is deemed important to prohibit this common use of such eating utensils. In an examination of the common barroom fork, undertaken sometime ago in Louisville, disease germs were found in thirteen out of sixteen specimens examined. It is suggested that the food at such lunch counters be prepared beforehand in the form of sandwiches, etc., and handed out to the individual, or else each customer be given food on a plate with individual utensils, and that these utensils be thoroughly washed after using."

School Nurses.

The January *Bulletin of the Health Department* of Asheville, N. C., is devoted to a discussion of various phases of school hygiene and contains among other things the following brief discussion of the benefits to be derived from having school nurses:

"The growing realization of the importance of the school nurse in any system of medical inspection received added impetus at the Buffalo meeting. Philadelphia school and health authorities have recently made careful investigations to test the workings of medical inspection with and without the "follow-up" by school nurses. The results showed a real saving in school time and money through nurse service. Not only did the nurse service save the pupil's time that would have been lost in returning to school, but in all instances the number of defects corrected increased with nurse service. This is the day of dollar efficiency, and the school system that can show, not a mere temporary saving, but permanent economy of operation in fulfilling community needs, educational or otherwise, is rewarded with public support. The advantages of school-nurse service are particularly susceptible to demonstration by the efficiency method. Furthermore, school-nurse service justifies itself on strictly pedagogical grounds: the work of the school nurse is hygiene instruction of the most direct and practical sort, and therefore belongs in the school's field, quite independently of other considerations."

Permanent Public Health Exhibit.

"On Wednesday, December 17, a permanent exhibit, showing the various activities of the department of health, was opened in the exhibition hall on the fifth floor of the Department Building, 148 Centre Street. On this occasion, Dr. Stephen Smith, one of the original organizers of the present department of health, delivered an interesting address describing sanitary conditions in New York City fifty years ago. At that time the death-rate was over 36 per thousand almost treble the present rate. The health authorities had no real power to remedy matters and the work was, moreover, largely dominated by politics. Dr. Stephen Smith was one of the prime movers in the formation of a citizens' committee, which made a very extensive and searching investigation into the sanitary condition of the city and prepared a bill which was finally enacted into law reorganizing the department of health in its present form.

"Doctor Jacobi, another of the speakers, emphasized the enormous improvement which had taken place in the milk supply of the city and heartily endorsed the attitude of the department of health in the matter of the pasteurization of the milk supply.

"Prof. Charles F. Chandler, who was one of the first "pure food" chemists in this country, gave an interesting account of the examination of foods for adulterations and emphasized the distinction between those which were dangerous to the public health and such as were merely commercial frauds but without effect on the public health.

"The retiring general medical officer of the department of health, Dr. Hermann M.

Biggs, sketched the remarkable changes which had taken place in public health methods following the bacteriological discoveries of Pasteur and Koch in the seventies and eighties.

"It is planned to make the exhibit permanent and keep it up to date and make it available to students of public health and others desiring to acquaint themselves with the work of this department."

Weekly Bulletin, Department of Health of New York City, January 3.

Sending Cultures and Specimens by Mail.

Thinking that a statement of the present postal regulations regarding the sending of bacterial cultures and pathological specimens may be of interest, we quote below an article from a recent *Monthly Bulletin* of the California State Board of Health which summarizes the matter in brief form:

"Under the new parcel post regulations it is permitted to spend specimens to the laboratory by parcel post. Notification to this effect has been received in the following excerpt from a letter from Mr. C. S. Merrill, postmaster of Berkeley:

"'For your information, I quote herewith the section *in the new parcel post regulations* covering this matter—

"'Specimens of dried blood or diseased tissues or communicable diseases, cultures and tubercular sputum may be mailed in accordance with instructions of the Treasury Department (Bureau of Public Health and Marine Hospital Service), as promulgated by the Post Office Department under Order No. 3064, of April 22, 1910.'

"'It will be necessary, of course, for you to bring your parcels to the post office, in order to determine the zone into which they are to be mailed.'

"Order No. 3064, referred to in Postmaster Merrill's letter, prescribes, among other requirements, that cultures of plague and cholera and liquid cultures are not to be admitted to the mails. The order specifies also that specimens shall be sent only in containers which have met certain requirements. The mailing outfits issued by the laboratory have met with the approval of the post office authorities, and they should be used exclusively in transmitting bacteriological specimens through the mails to this laboratory.

"By applying letter postage, as heretofore, the regular outfits may be mailed at mail boxes.

"Dogs' heads to be examined for rabies, cows' ears to be examined for anthrax, and similar specimens are unmailable and should be sent by express only. The postal regulations are explicit in this regard, and violations are frequently investigated by the postal officials."

Student Visiting Nurses.

The following suggestion in regard to the employment of student nurses as helpers in public health work comes from the January number of *Public Health*, the monthly bulletin of the Michigan Board of Health, and may offer a valuable suggestion to boards where such help is available:

"In your relation to public health administration you will find that among the poor much good is being done by pupils being sent out to give such aid as in their power lies. Besides the benefit to the student nurse coming in touch with the under classes, becoming used to the ways of depravity, inconveniences and lack of accessories which, with the well equipped training schools we do not come in touch as every convenience is offered. This work is both educational and philanthropic and should be more generally followed.

"District nursing may be followed by the pupil visiting nurses and in some quarters, the trained nurses district the city and wait regularly upon such as need assistance, coming in contact with insanitary ways of living and bettering them, and above all, doing much in the way to successfully bring up the public health standard.

"Better results are obtained by specialising, so conceded, whether as physician or nurse. If we give our whole attention to one subject or particular branch of this work, such as tuberculosis, care of babies, milk inspection, visiting the schools, we are soon fitted to be judges of the conditions to be righted and much good is brought about

in this way that is not done without this special nurse."

State Control Local Health Boards.

"In the history of corporations, or institutions, and in public matters we generally find that administration precedes efficiency, that laws tending to the perfection of administrative work take precedence over laws tending to the efficient direction of same, that citizens and the public are more inclined to allow their minds to dwell on generalities than on detail. As a consequence of this psychological fact, boards of health have been appointed as a matter of course, but without due regard to their efficiency. Man is so accustomed to be sick and disabled that through his inability to properly connect cause and effect he has accepted the inevitable without comprehending the reason for unnecessary illnesses and deaths. Then again, the health board being a road for publicity, politicians and those politically inclined have taken advantage of such position in order that they might use it as the first rung of a ladder for ascent to something more remunerative and more agreeable. Others have employed it as a resting-place for easy work and moderate income. Material advances in public health matters have been invariably either through public calamity, a temporary hysteria or excitement brought about by some one calling attention to defects and making demand for improvement, or the slower process of public education and resulting clamor for better conditions. We have in this state, as we have in other states, hundreds of local boards, each governing itself, each mapping out its own policy, and none correlating, so that the unhealthy conditions of one community are not prevented in passing over to another. Disease is not a local condition. Disease processes and dissemination should be considered as a broad matter, demanding at least state control. It is not for us to discuss here governmental control. New Jersey has nearly five hundred boards of health by name. It has scarcely half a dozen that are boards of health by action. The time now is ripe in the public mind and in the professional to bring about the mighty change of state control and forced efficiency. There is that which tells us that with the coming meeting of the legislature efforts will be made to centralize sanitary authority at Trenton and to make sanitation and disease control compulsory in the different municipalities. The profession is called upon to comprehend the situation and to become interested and use its influence with all its might to further the movement."

Journal of the Medical Society of New Jersey, January 1914.

Health of English School Children.

The London Letter, contained in the *Journal of the American Medical Association* of January 10, contains the following interesting note on school hygiene:

"The annual report, for 1912, of the chief medical officer of the board of education has just been issued. It contains an exhaustive account of the measures which are being taken throughout the country to safeguard the health of school children. Uncleanliness still occupies a large share of the time and energy of the officers of the school medical service, but the returns show a decided and progressive improvement, and the grosser forms of uncleanliness are now rare as compared with the conditions that prevailed when medical inspection was instituted in 1908. There are about six million children in the public elementary schools. About 10 per cent. suffer from serious defects of vision. Among the causes given are heredity, early eye-strain, defective lighting, infectious diseases and neglect in obtaining early medical advice. From 1 to 3 per cent. suffer from defective hearing; from 1 to 3 per cent. have suppurating ears; about 10 per cent. have adenoids, inflamed tonsils or enlarged cervical lymph-nodes requiring surgical treatment; 1 per cent. have ringworm; 1 per cent. suffer from tuberculosis of readily recognizable form; from 1 to 2 per cent. have heart disease; from 30 to 40 per cent. have unclean heads or bodies, and more than half the children are in need of dental treatment.

"In five directions school hygiene has undergone evolution. There has been a steady

improvement in the routine work of medical inspection, and ancillary undertakings. There is less 'leakage,' more following-up and more accurate clinical examination. Secondly, there is fuller differentiation of abnormal children and a tendency on the part of authorities to modify the school curriculum in their behalf. Much time and labor are now being devoted to mentally defective, tuberculous, stammering, and frail or retarded children. Thirdly, there has been an enlargement of the conception of the sphere of influence of the school medical officers. Education authorities are finding that, though they have been appointed in the first place merely to inspect children, they may fill a very useful place in the educational system. Fourthly, there has been a marked advance in respect of medical treatment both in quality and in quantity. Lastly, the intimate relation between school hygiene and education is becoming recognized and its application understood. The equipment of the school, the character of the teacher, the importance of physical exercise and manual work, the relation of the leaving child to the national insurance system, to industrial employment, to further education in secondary schools, and to its own home life, are now receiving attention. Thus the school medical work and the issues arising therefrom are beginning to form an integral part of our educational system."

Commission to Study Chicago's Sanitary District.

"Realizing that the Chicago main drainage canal is fast reaching the limit of its capacity, the Chicago Real Estate Board proposes to bring three outside experts, having no preconceived ideas in the sanitary problems of Chicago, to define anew the policy to be followed by the Sanitary District.

"The sum of $10,000 has been placed at the disposal of the Committee on Harbor and River Improvement of the Real Estate Board by private subscription, as the members of the committee, of which John W. Alvord is the engineer member, believe that a review of the sanitary situation and a study and report would be of the utmost value to the city at the present time. For this purpose it is planned to coöperate with the Sanitary District, so that the experts may quickly learn of the local situation through such data, statistics, maps and analyses as have already been collected.

"*Future of Sanitary Policy.*

"Twelve problems were suggested as necessary to outline the future sanitary policy. Briefly, they relate to the dilution factor, with and without separation of trade waters and solids; to the degree of sewage treatment necessary; to the number and location of plants; to the question of extending branch dilution channels in place of interceptors; to the sanitary limits of dumping in the lake; to the problem of abating local nuisances in the three branches of the Chicago River; to the handling of the trade wastes; to the necessary plant, time and cost of its construction, should the dilution water be limited to 10,000 sec.-ft.; to what extent should reliance be had for a pure-water supply upon the preventing of accidental pollution of the lake by steamships, or from the deposit of dredgings, and when should reliance be had on the purification of the water supplies by filtration, sterilization, or other purification methods; to the possibility of contamination from future lakefront harbors and the necessary preventive measures to be adopted."

The Engineering Record, February 28.

Public Health Publicity in New York.

Commissioner Goldwater of the Health Department of New York City has, since the issue of March 4, been sending the *Weekly Bulletin* of the Health Department to 10,000 people, including every physician in the city.

"Formerly only 2,000 copies of the report were printed. The health department had asked for an increased circulation in 1912, but an adverse interpretation of the city charter blocked the way. In 1914, common sense prevailed, and the health department is now permitted to send out 10,000 copies of its bulletin."

"Commencing this year, the health bulletin will contain uniform quarterly reports on health activities. Each table is carefully

prepared to show in the clearest possible manner the lessons of each tabulation. These tables will be repeated each quarter in the same form, allowing easy comparison with previous statistics.

With the issue of February 7, the health bulletin began the regular publication of prosecutions for violation of the sanitary code with the names of the offending persons. The public can now keep an eye on the dirty food dealers and drive them out of business."

"The health department realizes the value of publicity as an educative force of the first magnitude. It proposes, provided funds can be found, to very greatly extend this part of its work and to carry on an intensive campaign of education by means of its weekly and monthly bulletins and also a more popular bulletin designed particularly for the 'man in the street.' The department also proposes to greatly extend its exhibits and public health lectures and is looking into moving pictures as a means of health education."

Examinations for Hook-Worm Ova.

The February 20 issue of *Public Health Reports* describes the technique for the examination of feces for hook-worm ova and for making permanent mounts of specimens:

1. Agitate about 0.5 gram of feces with 5 or 6 cubic centimeters of water in a small test tube. The centrifuge tube is suitable.

2. Strain through two layers of gauze to remove the two consistent particles of feces, and wash the residue with a sufficient quantity of water so that the total filtrate will properly fill a centrifuge tube.

3. To the tube of filtrate add and diffuse therein 5 drops of a 1 per cent. solution of "Toluidinblau" in a 2 per cent. aqueous solution of carbolic acid.

4. Centrifugate sufficiently, two minutes.

5. Decant all supernatant fluid.

6. Place two oeses of the sediment on a slide and spread by gentle pressure with a cover glass.

7. Magnify 105 times in a subdued light (oc. 4, ob. 3 Leitz).

The dye imparts blue and purple tints to the fecal material and a light-brown tint to the eggshells. This polychromatic effect greatly facilitates the locating of the eggs, which are then magnified 370 and 1,000 times for the purpose of more definite identification of the blastomeres (oc. 1, ob. 7, and oc. 3, ob. 1-12 oil Leitz).

These stained specimens may be satisfactorily mounted by rimming with melted paraffin. In such mounts the complete development of the egg, including the first embryonic stage, may be watched. As the egg becomes mature and the shell disintegrates, the embryo, whether dead or alive, takes on a purple color, as the result of coming in contact with the small quantity of unattached stain present in the mount. As long as the eggshell remains intact its color is light brown, but as soon as it permits the unattached dye to come in contact with the contained embryo the color of the egg changes, so that instead of a light-brown egg there is a purple egg.

In some instances the embryos entirely escape from their eggshells and lie free in the field, but dead, having taken a beautiful purple color. In others they remain coiled up dead in the eggshells. This change increases the value of permanent mounts, as some of the eggs may remain brown, while others show the embryos stained purple. It is necessary to avoid pressure on these mounts, as the embryos are very fragile, and the movement of the surrounding air bubbles is likely to cause fracture and displacement.

The Carrier Question in England.

That the movement to consider the possibility of isolating diphtheria carriers, as well as actual cases, is spreading to England is made evident by the following quotation from The *Medical Officer* of February 28:

"An experimental swabbing of a number of indiscriminately selected children in various Coventry schools last year proved that a considerable percentage of them were 'carriers.' Dr. E. H. Snell, M. O. H., writes in this connection: 'The futility of attempting to "isolate" diphtheria patients unless at the same time steps are taken to deal similarly with the "carriers" is obvious. Whether this is a practicable problem is uncertain. It is certain that at the present time no legal powers are possessed enabling

a local authority compulsorily to isolate them until free from infection. Until means are devised for adequately dealing with this matter, it is probable that the policy hitherto adopted by the Coventry council—which was perhaps in the first instance merely of the *laissez faire* order—of not providing indiscriminately isolation accommodation for this disease, may be justified by the logic of the position.' Doctor Snell adds that apart from the general question of the isolation of all possible cases, some, those in which the larynx is affected, may urgently require the operation of tracheotomy; hospital accommodation for such is often requisite."

Examination Notices.

An examination for the position of food inspector for the city of Savannah, Ga., will be held on Tuesday, June 9, 1914, under the supervision of Dr. G. B. Young, health commissioner for the city of Chicago, Ill., under the supervision of Prof. M. J. Rosenau, Harvard University, Cambridge, Mass., under the supervision of Surgeon-General Rupert Blue, U. S., Public Health Service, Washington, D. C., and under the supervision of the Board of Examiners, City Hall, Savannah, Ga. Further information can be obtained from those in charge of the examination at the cities above mentioned, or from W. F. Brunner, M.D., recorder, Board of Examiners, City Hall, Savannah, Ga.

The term of office will be three years—beyond political interference; salary, two thousand (2,000) dollars per annum; the examination to cover pathological and Bacteriological Veterinary Medicine and meat and other food inspection. The examination is to be identical at all places of examination.

Efficiency among Policemen.

In the March edition of the *American City* Henry Bruère, city chamberlain of New York, suggests that the police in a large city should not be content with merely preventing lawlessness but should spend his spare time in striking at the fundamental roots of crime and become a public welfare worker in the popular sense of the term. Another line in which the police might be of service is in connection with the health department. Here a great amount of energy and money is spent in the control of nuisances which is a police, rather than a sanitary matter in most instances. The employment of men who are competent to care for public welfare and decency would certainly be a step toward greater total efficiency even though increased salaries might be required to obtain such men.

We quote below a portion of Mr. Bruère's remarks:

"The police should be regarded, in every American city, as the best asset of a vigorous, good citizenship, and not as its chief problem. We need new ideals of police work.

"The city of New York employs 10,000 men to protect its life and property and to deal with conditions which are intolerable in a civilized community. Instead of acting as mere watchmen to guard against lawlessness, the police should be expected to observe and report upon every condition in their neighborhoods concerning which the city should take some form of action. They should be the eyes, ears, and feeling fingers of the city government, to learn where conditions exist about which the city should do something to reduce crime and to minimize unfortunate conditions which lead people to crime.

"No policeman would ever have an excuse for idling on post or for gossiping with other policemen, if he were expected to observe specific things in the neighborhood and to report upon them intelligently, and if from experience he found that action was taken on the basis of his reports.

"I would go so far as to urge that the police be made the chief welfare workers of the city's government, and that they be paid whatever salary may be necessary to enable the city to command the services of men who can understand and interpret its social needs. Who has a better opportunity for gathering the actual facts regarding the conditions in the city than the policemen?

"It would be foolish to say that the present-day policeman is useless, but it can hardly be denied that he is not used comprehensively enough. Give him program

support, encouragement, training, point of view and leadership—and more compensation if need be—and you will make the position of the policeman one of the most important, highly respected, and useful positions in public service."

Water Borne Disease in Children.

A recent number of the *New York Medical Journal* reviews briefly, as follows, an article from the *American Journal of Tropical Diseases and Preventive Medicine* of January:

"A. J. McLaughlin, in an investigation of the effect of sewage pollution of water on infant mortality, found that gross pollution usually coincides with an excessive infant mortality, which is especially high in the winter and spring. While it is often impossible and always difficult to convince adults that certain simple hygienic measures will prevent disease, the receptive mind of the child quickly accepts principles and eagerly applies them, and children should be taught in school both the fundamentals of personal and family hygiene, and the fact that it is their right to demand from the municipalities safe water, which must, furthermore, be subjected daily to bacteriological examination. Two primary facts should be taught in regard to food infections: 1, contamination of food or drink with the fingers may be equivalent to homicide; and, 2, that such results can be avoided by careful cleansing of hands and nails after using the toilet and before handling food and drink. Such instruction would reduce the incidence not only of typhoid fever, but also of bacillary dysentery and the conditions commonly grouped as diarrhœa and enteritis of children."

PERSONAL NOTES

The following persons were elected to membership in the American Public Health Association, April 9, 1914:—

August Vincent Graf,
Benjamin Jurist,
Charles H. LaWall,
R. H. McGinnis, M. D.,
Frederick William Schwartz
Elton David Walker,
Carlos Everette Warriner.

PUBLIC HEALTH NOTES.

School Ventilation.

Dr. J. B. Todd of Rochester reports in the February 28 number of the *New York Medical Journal* some experiments which he has been conducting on an improved system of school ventilation. After some investigation of the dust content of school air where the fan system of ventilation was used he evolved the system described below:

"The fresh air schoolrooms are rooms in which the lower sash is raised in four or five windows, and the opening fitted with a wood frame covered with medium weight unbleached sheeting. The room in which the experiment was first tried had five 36- by 40-inch windows facing the east. Steam pipes extended across the room under the windows, and a hot air inlet, 30 by 30 inches, was on the north side, midway from the floor to the ceiling with an exit opening of the same size, near the floor. In the morning before school opened, the room would be warmed by hot air driven by a fan. When school began this hot air inlet would be closed and all the windows opened, so that there would be fifty square feet of open window space covered with the screen. The cold fresh air would diffuse slowly into the room and would be met by the hot air rising from the steam pipes, so that there were no perceptible drafts. Children sitting within four feet of the open windows all the winter days experienced no inconvenience whatsoever. The temperature of the room was maintained at 68° to 70° F. as easily as before the screens were used. There are two reasons for this: first, glass is a great conductor of heat and cools the bad air in a room very rapidly while cotton conducts only one twentieth as much heat; second, if the air is being slowly diffused into the room, there can be no heat loss from radiation or conduction through the screens, and as it takes no more heat units from the steam pipes under the windows to raise the temperature of the air being slowly diffused into the rooms than it would to heat the same air by the heating coils in the fan room, the use of the screens is a clear gain of the heat loss by radiation through the glass of the windows. Another economy obtained from the use of the screens is the saving of power and attendance.

"After the screens were installed in this room, no more cases of fainting occurred, hacking, coughing, and restlessness disappeared, discipline was easier to maintain, and the children did better work. The windows were up during all kinds of weather; the coldest day of the winter the thermometer was at zero at 10 a. m. while it was at 70° F. with fifty square feet of screened opening in use.

"One would think that by filling the lower sash of all the windows in a schoolroom with cloth screens, the proper lighting would be decreased, but, instead, the lighting is really improved. The light rays are broken up by the cloth, and a soft diffused light results which is more comfortable to work by than the glaring direct light that comes through glass.

The fresh air rooms are absolutely free from odors, which are so closely associated in our minds with schoolrooms and institutions. Even the smell of stuffiness which can hardly be called an odor is entirely absent. It is, as one teacher has described the air conditions, 'like a continued day in June.'

"Wire gauze and cheese cloth window screens have been used a great many years, but they have proved unsatisfactory in cold weather because they produced cold drafts. For the proper ventilation of sleeping rooms during the shut in months of the year, the cloth screens are of the utmost value. The air is sweet and clean, and one awakes in the morning, vigorous with renewed energy.

"Next to the confined stuffy bad air in schoolrooms, the dust in the air produces the the most insanitary condition. In ordinary fan ventilated schools the dust that is brought into the room gradually accumulates, the room acting as a settling tank, while only a small portion is carried out by the vent. I have found in the screened fresh air rooms,

that this dust is entirely eliminated. This dust elimination is accomplished in two ways. First, the fan inlet being closed, no dust is brought into the room by the fan; second, the air that is diffused into the rooms through the screens is *filtered air*, and dust free. The cloth on the screens becomes discolored very much after a time and should be changed for new cloth. I have worked out a form of screen in which the cloth can be changed with little trouble.

"The fresh air screens are admirably adapted to improve the air conditions in sickrooms, hospitals, libraries, gymnasiums, factories, and shops, and their universal use would be of the utmost value in the prevention of tuberculosis and the long list of other diseases that have their incidence associated with ill ventilated places."

Sewage and Garbage.

The rapidly increasing density of population in the United States makes the study of sewage and garbage disposal a matter of the first consequence. An interesting contribution to this study has been made by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce, and has been issued in pamphlet form under the title of *Scientific Sewage and Garbage Disposal*. The pamphlet gives summaries of a series of consular reports concerning the practice followed in those European cities of 50,000 population and upward, which make some attempt at sewage purification; this excludes nearly all the municipalities of southern and eastern Europe. No reports were asked for from London, Berlin, and Paris. Physicians and sanitarians interested in the subject should apply to the United States Department of Commerce for this interesting and informing monograph.

Sexual Disease and the Individual.

Under the above title the *Journal of State Medicine* begins in its March number a series of articles by A. Corbett-Smith which will include all the latest statistics and information on the subject of venereal disease. The series will be republished in volume form at an early date and will consist of two editions, one a complete reprint and the other an abridged form.

We quote below the summary of the first article of the services.

"For reasons already indicated I have dwelt in considerable detail upon this subdivision of sexual diseases; and yet I cannot but feel that 'the half is not yet told.' But at least we have sufficient data from which to draw some definite conclusions and a summary:

"(1) That gonorrhœa, though comparatively ignored as a disease by the medical profession and by the public generally, is in reality one of the most prevalent of all diseases, if not actually the dominant disease of the human race.

"(2) That in comparison with the incidence of syphilis, gonorrhœa is probably four times as prevalent.

"(3) That it forms one of the most potent causes of sterility in women, and is accountable for a large proportion of the major surgical operations performed on women.

"(4) That gonorrhœa forms the direct cause of ophthalmia neonatorum, and so of more than 10 per cent. of all cases of blindness; of more than one third of the blindness affecting inmates of schools and asylums below the ages of 16 to 18 years.

"(5) That if submitted to adequate treatment in its initial stages gonorrhœa constitutes only a mild affection, at least in the majority of cases.

"(6) That through inadequacy of treatment, or similar causations, it has a strong tendency to become chronic, involving various more or less serious complications.

"(7) That in some cases, happily comparatively rare, the disease itself, or its remains, becomes the most serious affection and one capable of the gravest terminations, even of death.

"*The solution of the problem lies in the Education of the Individual.*"

School Visiting Nurses.

An interesting article in the March issue of PUBLIC HEALTH describes the Southampton school clinic which has recently been "established for the purpose of dealing with teeth, eyes, nose and throat, and skin diseases," and which is also extending the possibility of thorough physical examination

of school children where full examination has been impossible in the routine inspection. The article describes the equipment and general system of operation and in addition outlines the duties of the "school nurse" from which we quote the following:

"The duties performed in the outdoor visiting are as follows:

"(1) Visiting each school soon after the medical inspector has completed his inspection of that school and preparing lists of all children found to require attention. Separate lists are prepared for each department (boys, girls and infants) of a school and on each list there is a space for each of the following items: name, age, address, school, defect discovered, advice given by medical inspector, attention received; if no attention received, why not? financial position of parents; home conditions.

"(2) Visiting the homes of children in the aforementioned lists and filling up the report. Such report forms the basis from which the medical officer of health prepares the work for the clinic. Whilst visiting the homes, unsatisfactory conditions are noted and reported. For example: defective closets, blocked drains, damp rooms, etc., are reported to the sanitary inspectors' department. Cases of extreme poverty are referred to the Charity Organization Society and other charities, or advised how to obtain parish relief. Hospital letters are obtained for others.

"If parents can afford private medical attention the nurse encourages them to obtain it.

"(3) Visiting homes of children under treatment and assisting in carrying out any home treatment advised, *i. e.*, syringing ears, nose breathing exercises, rectal enemata for thread worms, treatment of ringworm, scabies, etc.

"(4) Urging treatment in all cases which cannot be treated at the clinic.

"(5) Visiting cases referred by school attendance officers, teachers, officers of the health department and others.

"(6) Giving lectures at schools on the simple rules of health."

Tuberculous Cattle in Holland.

We clip from the *Medical Officer* of February 7, the following interesting note on the method used by the Dutch government in dealing with tuberculosis in cattle:

"Doctor Howarth, the medical officer of health for the city of London, in a report to the corporation, refers to an organized effort to control tuberculosis among cattle which is being made by the Dutch government. The system, he says, has changed recently. Formerly any farmer could go to the government and say: 'Here is a tuberculous cow; I am prepared to have it condemned, and will accept compensation.' This led to no permanent good result. Now farmers are required to enter into an arrangement with the government. The initiative comes from the farmer, who asks that his farm shall be brought under the regulations. The stock on the farm is examined, and clinically recognized cases of tuberculosis are removed and slaughtered, compensation being paid. Recognition of tuberculosis is a reason for isolation, but not necessarily for slaughter. Young stock are kept from the older animals until two years old. Calves are fed on sterilized milk. When two years old these younger animals are tested with tuberculin, and, if healthy, are placed with the older healthy cattle. This is a less expensive method of dealing with the disease than the slaughter of all animals reacting to tuberculin, and it is expected that this slower process will result in the gradual creation of healthy herds. The farms housing these cattle are kept under observation by government inspectors, and the contract is cancelled if the farmer does not follow the regulations. The penalty to which he is exposed, after cancellation of the contract, is that he may be required to repay the cost of the examinations and injections during the time the contract has been in vogue, but no return is necessary for any compensation paid."

Fighting Unventilated Theaters.

Finding that, in the sudden rise in public favor of the "movies," many theaters were being constructed and used with a system

of ventilation which was hopelessly inadequate; the Chicago department of health has undertaken a fight to drive the offenders not of business. It was found impossible to force a standard of ventilation on the theater owners and to close theaters which did not conform to it, but another way was found which has given excellent results.

All theaters which were found to come up to the requirements of the department were given a certificate of proper ventilation which was displayed in the thicket window by the proprietors who realized the advantage of such a certificate and were glad to have it. Those which were poorly ventilated were advised to improve and were promised a certificate when the standards of ventilation were fulfilled. According to the February 14 issue of the *Bulletin of the Chicago School of Sanitary Instruction* the proprietors of the unventilated theaters are already complaining of "poor business" and many are making the improvements which will result in the patronage bringing certificate. We quote the following figures from the *Bulletin:*

"The theater ventilation situation moves slowly, but it moves. December 31 there were 409 unventilated theaters and theaters partially ventilated, but not complying with the ordinance. January 31 the number had fallen to 393.

"December 31 there were 175 fully complying; January 31 there were 202.

"In addition, there are 16 new houses being built to comply, and 43 old houses undergoing alteration to make them comply.

"In other words, in a very short time there will be 261 theaters fully complying. This will be a gain of 60 in the past three months. Moreover, 4 have been closed by the department, and 36 have closed voluntarily. Thus, there are 60 more good ones and 40 fewer bad ones—a gain of 100."

Maternity Benefit in France.

The *Medical Officer* of February 14 prints an interesting summary of the regulations of the maternity benefit in France which we quote below:

"Under a new law which came into force on January 1 last in France, mothers can claim a maternity benefit amounting to one or two francs a day for so long as the advisers of the local authority consider desirable. At the request of the Minister for Internal Affairs, the Académie de Médecine has drawn up a leaflet for the instruction of women who wish to claim the benefit. The directions set out that grants will be made on a medical certificate mentioning the expected date of labor. After the confinement it is ordered that the mother must keep her bed for ten days, suckle her child, abstain from alcoholic drinks and fatiguing household labor, and particularly from the use of the sewing machine. She must daily give the necessary attention to the child's entire body, particularly the eyes; she must not lay it on its back, but alternately on one side or the other; the breast must be given every two hours; and the medical man must be summoned on the appearance of the least trouble. Persistent disregard of these instructions in spite of the advice of the medical man, must be reported to the mayor, who will stop the benefit."

Pasteurized Milk for Babies.

During the period between April 24, 1911, and October 17, 1913, eight baby milk stations were maintained by Mr. George M. Oyster, Jr., in different sections of Washington, D. C., for a longer or shorter period for the purpose of dispensing milk or modifications of milk to the babies of the poor and the report of the experiment has just been published in pamphlet form by Mr. Ivan C. Weld. From this pamphlet we clip the following:

"About twenty physicians coöperated with Mr. Oyster to the extent of giving their time and services at the stations for the frequent examination of babies. They also prescribed the milk or modifications of milk to be given each baby.

"During the first year and a half, from two to four graduate nurses, selected by an advisory board of physicians, were employed by Mr. Oyster, and spent their entire time in visiting and instructing the babies' caretakers in their homes, recording facts regarding home and family conditions, weighing and observing the progress of the babies, and dispensing the prescribed milk at the stations. During the remainder of the period above

referred to, this part of the work was carried on, in coöperation with Mr. Oyster, by the Instructive Visiting Nurse Society. In all, about fifteen nurses participated in the work, and each nurse submitted a report regarding the babies under her personal observation. The nurses' reports also included reasons for bottle feeding, age, weight, and condition of babies when admitted to the stations, and the milk or milk modification prescribed by the physicians."

* * * * *

"In the raw milk group, which included 351 babies for whom raw milk exclusively was prescribed, we find the average net gain per day, per baby, to be .4030 ounces.

"In the pasteurized milk group, which included 557 babies for whom pasteurized milk exclusively was prescribed, we find the the average net gain per day, per baby, to be .4077 ounces—the average difference in favor of pasteurized milk amounting to .0047 of an ounce per day, per baby.

"As previously stated, the physicians prescribed both pasteurized and raw milk for 110 babies during one or more periods. It will be observed that in this group the same baby received both the raw and the pasteurized milk at different periods as the physicians prescribed, and also that the babies were subject to the same home influences and under the observation and care of the same physicians and nurses and caretakers during both feeding periods. *The average net gain per day, per baby, for the 110 babies in this group when fed on raw milk was .4312 ounces. The average net gain per day per baby, for the same 110 babies when fed on pasteurized milk was .4607 ounces—the average difference in favor of pasteurized milk amounting to .0295 of an ounce, per day, per baby.*

"*Conclusions.*

"(1.) The slightly greater rate of gain in weight made by babies when given pasteurized milk may possibly be attributed to the destruction of certain possible disturbing elements which, if present in milk not perfectly pasteurized, may tend to retard digestion or prevent the fullest possible assimilation of the milk.

"(2.) The actual difference in rate of increase in weight of the babies would seem to be convincing evidence that *proper* pasteurization does not impair the digestibility of milk or cause any possible injury to the nutritive properties of milk that can be detected even when used for infant feeding.

"(3) The decidedly greater rate of increase in weight of the 110 babies when fed on pasteurized milk, over the rate of increase of the same babies when fed on raw milk, would seem to be corroborative and conclusive evidence that no possible injury to the the nutritive properties of milk actually takes place as a result of modern *scientific* pasteurization and that even the best supplies of raw milk may, at times, be improved by such a process."

Malaria in America.

"Several statements in a paper by Dr. Malcolm Watson on the Prevention of Malaria in the *Glasgow Medical Journal* for February are of special interest to American readers. Doctor Watson, who is one of the best-known investigators of the mosquito-borne infections, was specially interested in what he saw in Panama. 'There the Americans,' he says, 'have certainly developed the finest sanitary organization the world has ever seen. . . . It is a mangificent work, and I shall always regard it as one of my privileges that I saw the Panama sanitary commission at work, and met the men who composed the department.'

"Of great importance is Doctor Watson's theory concerning the freedom from malaria in Barbados, unique among the West Indian Islands in this respect. Its freedom has been attributed to the presence of 'millions,' small minnows which are supposed to eat all the larvæ. Doctor Watson states that this supposition is entirely wrong and the real explanation is that Barbados is composed of a coral chalk, so pervious to water that no surface pools exist. The island is, therefore, sub-soil drained and the so-called rivers are nothing but dry channels. As the Barbados minnows are being exported in large quantities with the idea of redeeming other countries from malaria, Doctor Watson's explanation demands immediate and wide publicity."

N. Y. Medical Journal, February 28.

Educational Lectures on Municipal Hygiene.

"Most of the leading educational agencies of the present day recognize the value of the personally delivered message as a means of educating and influencing public opinion. The editorial, the pamphlet, the cartoon and the exhibit have a definite worth, but none of them seems to compare in effectiveness with the spoken message of an authoritative speaker. Some form of speakers' bureau is a recognized part of all successful educational campaigns. The department of social development of the Brooklyn Bureau of Charities has organized a speakers' bureau to supply lecturers on municipal problems. A directory of the men available shows a large number of well-known and recognized authorities on such subjects as women's wages, industrial accidents, old-age insurance, child labor, housing, disease prevention, foods and drugs, preventive medicine, outdoor recreation, causes of crime and vice, liquor problems, care of the insane and feeble-minded, city beautification, immigration, etc. These subjects are to be discussed from the special point of view of the New York citizen rather than in a general way. Such an educational campaign is characteristic of present-day ideas and ideals of social progress, and cannot fail to have a beneficial effect on social conditions.

Journal of the American Medical Association, February 21.

Running Out the Quacks.

"Quack doctors are the most vulnerable of big game. How astonishingly tender their commercial susceptibilities are has been shown by the *Chicago Tribune*. One week of exposure through the *Tribune's* columns practically ruined every venereal disease quack in the city. Some shut up shop and disappeared. Others sat idle in empty offices, forlorn spiders at the center of flyless webs. Never before was so powerful and profitable an industry brought to such instant wreckage. What destroyed this pirate trade was not alone the direct result of the exposures, definite and potent though that was. The lethal blow was the eviction of all this class of advertising from the daily press. Within four days of the *Tribune's* declaration of war every morning and afternoon paper in the city, whether printed in English or in some other language (and there is a great number of Chicago newspapers published in foreign tongues), which was carrying this class of copy had been shamed or alarmed into throwing it out. The evening paper of William R. Hearst, who a year ago bragged mightily of having foregone his alliance with quacks, was forced to exclude advertising which represents in the neighborhood of $70,000 a year blood money to that apostle of journalistic purity. Finally, the militant *Tribune* gives notice of its intention to stir up prosecutions under the law; or, if the present law be inadequate, to agitate for the enactment of a stronger statute under which the malefactors may be brought to book. In view of this newspaper's established reputation for carrying out whatever it undertakes to the fullest conclusion, it is a fairly safe prophecy that in Chicago the venereal quackery game is up. Out in Seattle the *Sun*, a lusty infant of far western journalism, performed a like service for its city; and some years ago the *Cleveland Press* made a valiant but only partly successful effort in that vicinity. But the Chicago campaign has been by far the broadest and most significant. On its letterhead the *Tribune* terms itself 'The World's Greatest Newspaper.' To our mind its anti-quack victory goes far toward making the boast good."—*Collier's*.

Screening as an Anti-Malaria Measure.

The *Tropical Diseases Bulletin* of February 14 reviews a portion of the Proceedings of the Canal Zone Medical Association which discusses the value of screened dwellings in malarial regions. We quote a part of the review as follows:

"(1) The employees residing in screened barracks are not allowed to remain in the barracks unless they bear a physician's certificate; this results in every case of malaria being seen by him. The employees in unscreened barracks are not so controlled, and consequently many cases of malaria amongst them are missed.

"(2) The proximity of the unscreened

settlement with its large number of malaria carriers furnishes a number of infected Anopheles, these affecting to some extent the employees residing in the screened quarters who quite frequently spend their evenings in New Gatun.

"The paper concludes with a few maxims regarding screening, which are given in full.

"1. Screening to be effective must be thorough.

"2. A screened dwelling with defects in the screening (ill-fitting doors etc.) is probably worse than an unscreened dwelling, for in such a house, mosquitoes though readily finding an entrance, once having entered, will not leave.

"3. The wire gauze screening must have a sufficient number of strands per square inch to ensure the impossibility of mosquitoes entering. Eighteen mesh gauze is used in the Canal Zone, and is effective.

"4. The screening must be tight, this will prolong its life.

"5. All doors should open outward, and should be provided with an efficient closing device, and should be hung so that they will not warp or sag.

"6. Windows should not be fitted with removable or sliding screens. Practice has shown that the average person will not use care in keeping adjustable screening carefully closed and mosquito proof.

"In the Canal Zone screening does not make the rooms much hotter. The temperature seldom rises above 94° F.; the average daily temperature is approximately 80° F. The highest grades of copper only are used, and the screening is kept free from dirt and products of corrosion by frequent brushings.

"The conclusions are as follows:

"1. A properly screened dwelling can be depended upon to reduce by at least one third of the malaria incidence in a locality where malaria is endemic.

"2. In order to be effective, screening must be carefully planned, well installed, and kept in good repair."

International Sanitary Conference.

Surgeon-General Blue, provisional chairman of the International Sanitary Bureau of the American Republics, has issued the following announcement:

"In compliance with the resolution adopted at the Fifth International Sanitary Conference, the Sixth International Sanitary Conference of the American Republic will be held in Montevideo, Uruguay, December 13–21, 1914, under the presidency of Dr. E. Fernández Espiro and the auspices of the Government of Uruguay.

"A number of important sanitary subjects will be discussed at this conference, and it is expected that all the nations interested will be duly represented.

Provisional Program for the Conference.

"1. Review of sanitary legislation enacted in the different countries since the Fifth Conference.

"2. Report of progress made in adopting the resolutions agreed to in preceding conferences.

"3. Reports on morbidity and mortality statistics subsequent to the last conference.

"4. Recent developments in the campaign against plague, yellow fever, leprosy, trachoma, malaria, hookworm disease, tuberculosis, and venereal diseases.

"5. Measures adopted to combat the prevalence of cerebrospinal meningitis and acute infectious poliomyelitis.

"6. Progress made in maritime sanitation since the last conference, especially with reference to the opening of the Panama Canal.

"7. Data relating to the work of the Sanitary Information Bureau of Montevideo.

"NOTE.—With the approval of the program committee additional papers may be presented by any delegation on sanitary or scientific subjects of general interest.

"The reports by the various delegations shall be submitted in printed form to the secretary if the conference before the beginning of the sessions and will be accompanied by a short résumé."

Education in the Care of the Baby.

From *Public Health Reports* (March 20) we clip the following announcement:

The booklet referred to as published by the Public Health Service is an excellently practical treatment of the subject, containing in a few pages of simple reading more than could be collected elsewhere from sev-

eral large books. It may also be obtained from the superintendent of documents for five cents.

"The Indiana State Board of Health has issued a small booklet containing information for mothers and prospective mothers on the care of the mother previous to the birth of the child and the care of the child when born. A copy of this booklet is sent to each mother in Indiana when her first child is born. Information as to who the mothers are is obtained from the birth certificates registered. This is one of the ways in which birth registration can be made of direct value in public health administration.

"A committee of the American Association for the Study and Prevention of Infantile Mortality has also prepared a booklet on the baby which was adopted by the association at its meeting in Washington, D. C. in November, 1913. This booklet has been published by the Treasury Department and boards or departments of health can obtain copies for distribution to the mothers of infants by application to the surgeon-general of the Public Health Service in so far as the available edition will allow. Or health officers can furnish the addresses of mothers to the Public Health Service on frank slips which will be sent on request. Copies of the booklet will then be mailed to these addresses by the surgeon-general."

Surgeon-General Torney's Last Report.

The 1913 annual report of the surgeon-general of the army has just appeared. It is a 300-page volume dealing with the improvements, administration and needs of the medical department of the army during the year. Especial interest attaches to this report since it was the last to be issued before the death of General Torney, and to some extent sums up the progress made under his administration. The conclusions are given below:

"This report is the last which will be signed by the present surgeon-general on account of his retirement for age during the current fiscal year, after an incumbency of five years four and one-half months. It seems advisable, therefore, that a brief summary be made of the work done by the medical department and of the results obtained under his administration.

"1. Typhoid fever, the most formidable of all camp diseases in the past, has apparently practically ceased to be a cause of non-effectiveness in our army. This, as is well known, is the brilliant result of the immunization of our army against this disease by the typhoid prophylactic. It was demonstrated in the maneuver camp at San Antonio in 1911 that it was entirely practicable to immunize a division upon mobilization without materially interfering with the military duties. The same can be done for any numbers of division. Thus, if at any time it becomes necessary to mobilize a large army of militia and volunteers, they can be properly protected against this disease in a short time after arrival in camp. The first steps in this campaign were inaugurated by my predecessor, General O'Reilly, in the latter part of 1908, and has been conducted to the present stage by the medical corps during my incumbency. I consider that, among the sanitary achievements of the medical department in preventive medicine, this measure for the prevention of this disease ranks second in importance only to the discovery of the method of transmission of yellow fever.

"2. It appears, as stated elsewhere in this report, that at last effective measures have been instituted to control the occurrence of venereal diseases. Practically the first note of this campaign was sounded in a circular letter from this office January 25, 1909. Since that time a vigorous campaign has been conducted, and interest throughout the medical department and the army at large has been aroused The War Department was finally persuaded to take official action in 1912, and Congress, at the suggestion of this office, passed the act, for the stoppage of pay in 1912. The statistics for the year 1912 and for the first six months of 1913 show that the results obtained are eminently satisfactory, and would indicate that we may hope for still more satisfactory results in the future. Great credit is due to certain enthusiastic medical officers for especially good work done during this campaign.

"3. Prior to the year 1910 among the na-

tive troops in the Philippine Islands, beriberi each year caused a large number of admissions to sick report and much non-effectiveness. This disease was also responsible for the greatest number of deaths, and was second only to tuberculosis as a cause for discharge for disability. Experiments conducted by several observers, and confirmed by the board for the study of tropical diseases in the Philippine Islands, showed that beriberi occurred among people subsisting largely on highly-milled rice. As a result of recommendations by the board, orders were issued by the division commander and later by the War Department prescribing that only unpolished rice be issued and that a legume be added to the ration. Following the change in the ration, beriberi has practically disappeared from among these troops. Only three cases occurred in 1911 and two in 1912.

"4. As a result of constantly improving sanitary measures, the constantly non-effective and admission rates have steadily declined since the Spanish-American War. During the last few years, as the result of the antityphoid and venereal campaigns, these rates have decreased more rapidly, and in 1912 were the most satisfactory on record. This year, 1913, bids fair to eclipse all records, and it would seem at the present time that these rates this year would reach an almost irreducible minimum.

"5. Camp sanitation has been improved, simplified, and rendered inexpensive. It is being demonstrated each day that troops properly protected against typhoid fever and smallpox can live in camps suitably located, with the present method of camp sanitation, for an indefinite length of time with no increase in morbidity or mortality."

Housing Conditions in Dublin.

An editorial in the *Medical Officer* of February 28 comments on the existing housing conditions in Dublin as reported by a committee which has recently made an investigation. The conditions reported ought to make us feel that our own housing problem is simple and capable of being relatively easily handled. Certainly now is the time to improve our conditions in this country and to pass laws which will prevent our ever getting into Dublin's condition. We quote the editorial entire, as follows:

"It is not improbable that if decent and proper houses were provided for the people much saving might thereby be effected both to the state and municipality by the raising of the moral tone of the people and the almost certain consequent reduction in crime and sickness. It is in these words that the departmental committee, appointed by the Irish Local Government Board to enquire into the housing conditions of Dublin, refers the more energetic administration of the public health laws in Dublin. That there is great need for more energetic administration is apparent on almost every page of the committee's report. Nearly one half of the industrial population of Dublin live in tenement houses or in insanitary small houses. The tenement houses are nearly all old structures built originally to accommodate a single family; many are in a more or less advanced state of decay, and the rental charged for the individual tenements is out of all proportion to the accommodation given. As many as 20,000 families live in one-room tenements, and over 1,500 cellars are occupied by families. Most of the houses have back yards, but there is only one tap to supply water to all the occupants of the house. The sanitary conveniences are either in the yard or sometimes in the cellar, and can be used not only by the dwellers in the tenement but by anyone else who likes to come in. The roofs of the houses are bad, the stairs cramped, the floors out of repair, the window frames and sashes perished, and there is generally about them a state of indescribable filth. As regards about 27,000 of the tenements, a rental of less than 3s. a week is charged with respect to 13,000, of 3s. for about 5,000, and of more than 3s. for 9,000. Speaking generally, the tenement house property is owned by a large number of small owners, who own at the most about forty houses each. The owners include three members of the Dublin corporation.

"The committee suggests that the non-enforcement of the sanitary laws has permitted houses to be inhabited which are

not fit for habitation, and that the want of a firm administration has created a class of owners with but little sense of their responsibilities as landlords, and that this has helped much in the demoralization of the working classes and increased the number of inefficient workers in the city. It is further suggested that the provision of sanitary dwellings by private enterprise has been to some extent handicapped by unfair competition with insanitary dwellings which could be let at rents that would not pay for the provision of decent houses. After reading the report of the committee, we are not surprised that the tenement system is condemned absolutely and that the erection of self-contained dwellings is recommended. It is advised that 14,000 at least of these are required, and it is evidently in the minds of the committee that assistance might be forthcoming from the State in providing these houses. The story told in the report is a sad one, but it is one that has been more than suspected by housing reformers. Now that the facts have been stated officially we do not doubt that public opinion will insist upon remedial measures being adopted. But the first essential is a firm and impartial administration of the existing laws."

Investigation of Venereal Disease.

A communication in the February number of the *Southern Medical Journal* urges the Southern Medical Association to appoint "a commission for the study prevention and eradication of venereal disease in the southern states." The writer says:

"With yellow fever disposed of, malaria, uncinariasis and pellagra receiving competent attention, can we not devote some effort to the control and eradication of the greatest scourge of all—venereal disease?

"The venereal disease is not peculiar to the South, nor does it prevail more extensively here than elsewhere, but this does not lessen our duty or lighten our burden. Racial and economic conditions make it a special problem for us, and we must accept it for our own protection. The extent of the ramifications has never been investigated, no survey made or effort made to control its spread.

"A filthy, polluted body endangers the innocent, pelvic operations destroy posterity, blind asylums are expensive, and insane hospitals mark the nation's decay; and all these are increasing, yet nothing is being done to stay the tide.

"The Southern Medical Association needs a commission for the study and prevention of venereal disease. The work of such commission, briefly, would be as follows:

"1. Gathering information and compiling statistics:

"(A) Prevalence of venereal disease in (a) the negro race, (b) Caucasian race.

"(B) Extent of transmission of venereal disease and the method of transmission, (a) sexually, (b) innocently.

"(C) Existing and past legislation, with results.

"(D) Estimation of the economic results of these diseases.

"2. Dissemination of information:

"(A) The gravity and end results of neglected venereal disease.

"(B) Methods of prevention.

"(C) Importance and possibility of cure.

"(D) Campaign of education for physicians.

"3. Recommending to and assisting bodies endeavoring to prevent or minimize venereal disease, and attempting to stimulate proper legislation."

INDUSTRIAL HYGIENE AND SANITATION.

The Visiting Nurse Service.

Although no vital statistics on the subject are now available, it cannot be doubted that the visiting nurse service can be made an important factor in the reduction of mortality among industrial workers. Occupational diseases are often aggravated by a lack of proper treatment, unfavorable home conditions, or a general ignorance of personal hygiene. Such being the case, a visiting nurse can be of enormous value by administering aid at the proper time and by giving instruction for correct living.

The writer has just received a pamphlet telling of the visiting nurse service of a leading insurance company in New York. The service, which is extended to the industrial policy-holders, was introduced as an experiment, in only a limited section, but it was so highly appreciated by the policy-holders that the territory was extended over several sections of the city.

The work is carried on in coöperation with the attending physician whenever possible, and in case the patient cannot afford to engage a physician it is the duty of the nurse to make some arrangements for medical services. Such service among the industrial workers cannot fail to prolong life, and thus pay good returns for the investment. The time-worn adage concerning "a stitch in time" is nowhere truer than in the conservation of human life. This fact is being recognized, not only by insurance companies to whom such conservation is of most direct value, but also by various other organizations whose success depends upon the efficiency and longevity of the human machine.

Although an insurance company may adopt the visiting nurse service merely as an investment, expecting to get returns either by the prolongation of life or in public "good will," it must be borne in mind, however, that society itself is the original and most important life insurance company, having the largest investment and to whom the greatest profits must accrue in all conservation of life and health.

The Health of the Worker.

There is a pamphlet with the above title, written by Prof. C.-E. A. Winslow and published by the Metropolitan Life Insurance Company, which states very succinctly the "dangers to health in the factory and shop and how to avoid them." The dangers from factory dusts and fumes are carefully described and practical suggestions are given for the removal of vitiated air by means of suction. The importance of proper lighting, and washing and toilet facilities is duly emphasized.

The pamphlet also contains a résumé of the sanitary standards adopted by the Joint Board of Sanitary Control in the New York Cloak, Suit and Skirt Industry. A single glance at the adopted standards reveals the fact that they are not a list of idealistic recommendations but rather a set of standards which are attainable, and really essential to health, comfort, and common decency in factory life:

"1. No shop is to be allowed in a cellar.

"2. No shop is to be allowed in rear houses or attic floors without special permission of the board.

"3. Shops located in buildings two stories or more in height must have one or more fire-escapes.

"4. All fire-escapes are to be provided with ladders to the roof of same house or to an adjoining house; also with full length drop ladders properly located and adjusted.

"5. In all shops which are provided with automatic sprinklers, there should be kept a sufficient number of chemical extinguishers, or a sufficient number of fire buckets, properly located and filled.

"6. Special caretakers are to be appointed in each shop for the care of the fire buckets, and for their use in case of fire.

"7. All openings and exits to fire-escapes are to be left unobstructed by tables, machines, boxes, partitions, and iron bars.

"8. No doors are to be locked during working hours.

"9. No smoking is to be permitted in the workshop.

"10. Conspicuous signs are to be placed throughout the shop, marking location and direction of exists and fire-escapes.

"11. Fire-proof receptacles, lined with tin, and having a tin cover, are to be provided, in sufficient numbers, for rubbish.

"12. Halls and stairways leading from shops are to be adequately lighted by natural or artificial light.

"13. Stairs are to be provided with secure handrails and safe treads.

"14. Sufficient window space is to be provided for each shop, so that all parts of the shop be well lighted during the hours from 9 a. m. to 4 p. m.

"15. Where gas illumination is used, arc-lights or incandescent mantles should be used.

"16. All lights are to be well shaded, placed above operatives, and not too near them.

"17. At least 400 cubic feet of space, exclusive of bulky furniture and materials, should be provided for every person within the shop.

"18. The shop should be thoroughly aired before and after work hours, and during lunch hour, by opening windows and doors.

"19. No coal should be used for direct heating of irons, and whenever stoves are used for heating shops, they should be surrounded by metal sheet at least five feet high.

"20. Walls and ceilings of shops and water-closet apartments should be cleaned as often as necessary, and kept clean.

"21. Floors of shops, and of water-closet apartments, are to be scrubbed weekly, swept daily, and kept free of refuse.

"22. A separate water-closet apartment shall be provided for each sex, with solid partitions to extend from floor to ceiling, and with separate vestibules and doors.

"23. Water-closets are to be adequately flushed and kept clean.

"24. A special caretaker is to be designated by the employer to the care of the shop and water-closet apartments.

"25. A sufficient number of water-supplied wash-basins is to be provided in convenient and light locations within the shop.

"26. Suitable hangers should be provided for the street clothes of the employees, and separate dressing-rooms are to be provided wherever women are working.

"27. Water-closet apartments, dressing-rooms, wash-rooms, and lunch-rooms are to be properly lighted, illuminated, ventilated, cleaned, and kept clean.

"28. All seats are to have backs."

Legislation for Working Women.

In the *Illinois Factory Inspection Bulletin*, Mr. Oscar F. Nelson, chief state factory inspector, gives a brief synopsis of "some recent legislation for the benefit of working women." The following will give an idea of what some of the states are doing for their working women:

Rhode Island has passed a law prohibiting the employment of women more than ten hours in one day and more than fifty-four hours per week, in factories, manufacturing, mechanical, business, or mercantile establishments.

The new Delaware law provides a ten hour-day and a fifty-five hour week in many occupations, but it exempts the canning industry which is one of the most important in the state. One working day of twelve hours each is permitted.

Texas passed a ten-hour day and fifty-four-hour week law, but exempted the cotton mills which probably employ a great majority of Texas' 4,000 women factory workers.

In New York a new law has been enacted which prohibits the employment of women at night in manufacturing between 10 p. m. and 6 a. m.

The new Massachusetts law extends the fifty-four-hour limit to telephone exchanges and to other lines of work besides factories.

Nebraska has established a nine-hour day and a fifty-four-hour week, with the provi-

sion that no women shall be employed between the hours of 10 p. m. and 6 a. m.

The Pennsylvania law which became effective November 1, 1913, is quite comprehensive. With the exception of canneries and hospitals, women cannot be employed more than six days or fifty-four hours in any one week, or more than ten hours on any one day. There are a few exceptions to this in case of overtime, which is carefully limited. There is also a limit upon the time of employment during the day, upon the length of lunch hour, and upon the number of hours of continuous work without rest periods. Dangerous fumes, dusts, and gases must be removed, clean water must be supplied without charges, proper toilet facilities must be furnished, and seats provided for employees. Workrooms must be kept sanitary, well lighted and ventilated, buildings above the second story must have at least two exits, and fire drills are required where women and girls are employed.

Wisconsin's new law provides that no woman shall work more than ten hours except upon consent of the Industrial Commission. Thus far one exemption has been made. The author questions the advisability of this power, since it may open the way for the practical annulment of the women's labor hours law.

Montana upheld the legality of the new nine-hour woman's employment law when the first prosecution resulted in fining a hotel proprietress fifty dollars.

In Minnesota no woman can legally be employed in a restaurant more than ten hours a day, and in mercantile and manufacturing employments including telephone offices not more than nine hours. Sixty minutes must be allowed for the noonday lunch.

California has passed an eight-hour law which applies to all female labor except office help. The hours of women employment is restricted to forty hours per week, but the canning industry is exempted.

Oregon has established a nine-hour day and a fifty-four-hour week for female labor. Forty-five minutes must be allowed for lunch. Ohio limits the employment of female labor to ten hours in any one day and to fifty-four hours in a week.

Washington passed an eight-hour law for women, but exempted the canneries.

Illinois failed to pass a bill limiting the employment of women to fifty-four hours per week. Women may now be worked seventy hours per week.

The above synopsis shows the general trend of present-day legislation. No well-informed person will deny that a reasonable limitation of hours of labor is of untold value to society in general. In regard to the manufacturer's position the author makes the following unqualified statements:

"The manufacturers of the states that protect their women are quite able to compete with those of backward states. Fewer hours for women means greater efficiency and greater interest in the work. It is wise to conserve the human machine, as Secretary Redfield, a manufacturer himself, has argued. Protection of our female employees pays, and the old fallacies against it cannot be mumbled with a serious face."

Hygiene of the Painters' Trade.

A very admirable presentation of the above subject is to be found in *Bulletin No. 120*, United States Bureau of Labor Statistics, by Alice Hamilton, M. A., M. D. The author gives not only a detailed discussion of lead poisoning but also the results of various experiments and observations pertaining to the subject. The hygiene of the painters' trade is briefly but clearly set forth in the author's summary, which is substantially as follows:

Paint consists essentially of pigment ground in a liquid vehicle, and either the pigment or the vehicle may possess poisonous properties.

The dangerous pigments are the different salts of lead, the basic carbonate, red lead and orange mineral, the chromate, and the basic sulphate. Experiments with the basic carbonate and the basic sulphate show that the former is much more soluble in human gastric juice than the latter and causes more rapid and severe poisoning in animals.

The danger in the use of leadless paints and of paint removers comes from the liquid vehicle and is increased by lack of proper ventilation. If quickly drying flat finish paints are used in close, ill-ventilated rooms, serious poisoning from the fumes of coal-tar products and of turpentine may result. The danger from the use of lead paints comes from paint dust in the air and from paint smeared on the hands which may be carried into the mouth with food or tobacco.

Paint dust is caused chiefly by rubbing old or new paint with dry sandpaper. This process is universally recognized as the most dangerous part of the painters' trade. It could be completely done away with by the use of cheap mineral oil to wet the sandpaper and catch the dust.

The protection of the painter against poisoning through unwashed hands can be affected only by providing adequate washing facilities and a clean lunchroom wherever work with lead paint is carried on.

Interior house painting, ship painting, and certain kinds of painting, including railway cars, are the most dangerous branches of the trade in the United States.

The painters' trade is regarded in all countries as the most important of the lead industries. Six European countries have carried on investigations in the use of lead paint in industry, and five have recommended legislation more or less comprehensive to lessen the dangers to which painters are exposed. In the United States, Illinois alone has passed such a law, and it does not cover any painting except that done in workshops.

A study of hospital reports from four cities shows that one fourth of the hospital cases of lead poisoning in these cities were painters. In New York City the proportion is even greater. Forty of sixty fatal cases of lead poisoning in New York were painters.

Among 1,009 painters in Chicago who sent answers to a list of questions, 185 gave a history of lead poisoning, 72 of kidney trouble, 77 of rheumatism, and 24 of stomach trouble. One hundred able-bodied painters presented themselves for physical examination by a specialist in occupational diseases, who found that 59 of them showed evidence of chronic lead poisoning.

An analysis was made of the hospital or dispensary histories of 100 lead-poisoned painters. The proportion of complicated and of chronic cases was large, over half had had more than one attack, 39 had had palsy, and 9 had had brain symptons.

This study of the painters' trade in the United States shows that there are many elements of danger, most of them avoidable, and it shows that if protective legislation is to be passed it should be directed toward the prevention of poisonous fumes and dust, and the provision of facilities for bodily cleanliness.

Such legislation should (1) forbid the use in unventilated rooms of paints or paint removers containing volatile poisons; (2) forbid dry sandpapering or dry chipping off of lead paint; (3) insist that the employer provide a proper place for his workmen to hang their street clothes and keep and eat their lunch, and a washroom with a sufficient number of basins, warm water, soap, towels, and brushes; (4) require the labeling of all paint offered for sale in such a way that the painter can be apprised of the danger involved in its use; (5) in the case of work done in factories, cards of instruction for the workmen should be posted, and if necessary these should be written in one or more foreign languages.

The total prohibition of lead paint for use in interior work would do more than anything else to improve conditions in the painting trade. Doctor Hamilton's report is excellent and should be studied by all interested or engaged in the painters' trade.

The Cause of Occupational Disease.

It is well worth noting the opinion of students of industrial hygiene, regarding the most important factors of causation in occupational diseases. The list of causative factors is long and varied, and since under such conditions much time and energy is apt to be given to relatively unimportant affairs, it is highly desirable that the question of values be given careful attention. The following paragraph, taken from the

United States *Labor Bulletin No. 127*, by William C Hanson, M. D., gives apparently a very fair statement of the case:

"The late Dr. Charles Harrington, under whose supervision was shown in Boston, Mass., in 1907, for the Massachusetts State Board of Health, the first exhibit in America relating to occupational diseases, called attention to the fact that the disastrous effects attributed to occupations were in very large part due to non-observance of the principles of general hygiene and chiefly to inattention to that most important sanitary measure, perfect ventilation. He further gave it as his opinion that 'with proper attention to this matter and improvement in the home and home influences, greater attention to the character and preparation of food, and a more general observance of the beneficial influence of active outdoor exercise, no very great differences would be noted in the health of the various classes of working people, and the expression "occupational diseases" would lose whatever significance it now has.'"

The American Museum of Safety.

One of the most valuable movements in America for the advancement of industrial safety and sanitation has been instituted by "The American Museum of Safety." The work of the organization is divided into three general departments, namely, that of Chemical Industries, Education, and Industrial Hygiene and Occupational Diseases. The last department is still further subdivided into care of the sick and injured, communicable diseases, factory planning, food and industrial dieteties, illumination, ventilation and heating, and water supplies. Each of these departments and sub-departments are directed by experts.

The opportunity for invaluable social service in the field chosen by this organization is boundless, and if it can maintain a non-commercial position as are its claims, its recognition generally as a social benefactor is assured.

The best conception of the museum's work and ideals may be gained from the organization's own statement, appearing in the *Monthly Bulletin*. It is as follows:

"The American Museum of Safety was organized and is maintained for the prevention of accidents, the elimination or lessening of occupational diseases, and the promotion of industrial welfare through health, efficiency and coöperation.

"There are now twenty-five museums of safety and institutes for the study of industrial hygiene in the world. The American Museum of Safety—twelfth in the world series of museums—was incorporated by special charter from the Legislature, Chapter 152 of the Laws of 1911, of the State of New York. It is the only institution of its kind in the United States.

"The museum is located at 29 West 39th Street, where it occupies the sixth floor of the Engineering Societies' Building. Its collections include not only actual devices and models of safety and sanitary appliances, but also a highly specialized library of books, pamphlets, reports, photographs and lantern slides, illustrating the simplest and most practical methods of protecting dangerous machines and processes. The museum is absolutely non-commercial and does not sell or take orders for any of the devices it exhibits.

"The museum is open daily from 9 a. m. to 5 p. m.—except on Sundays and holidays—and is free to the public. By special arrangement, it may be kept open from time to time for evening visits by technical societies, superintendents and foremen, inspectors, and bodies of educators, students and workmen."

The New York Factory Investigation.

In a very voluminous report, Dr. George M. Price, director of the New York State Factory Investigation, states quite clearly and fearlessly the results of his investigation of "existing conditions under which manufacture is carried on in the cities of this state, as to matters affecting the health and safety of operatives." The conditions found in New York are, doubtless, characteristic of those prevailing throughout many manufacturing centers.

In connection with the general sanitary investigation, the following subjects were given special attention: factory location

and construction, light and illumination, ventilation, washing facilities, lunch rooms, toilet accommodations, and sanitary care and comforts.

The occupation of lofts and cellars by manufacturing establishments presents a very serious phase of the factory problem, in regard to proper lighting, ventilation, and fire protection. To relieve such conditions in the "loft" industries, three remedies are proposed:

(1) The limitation of occupancy according to the character and number of building exits.

(2) The installation of mechanical ventilating plants.

(3) A licensing system for all establishments located in such buildings.

The importance of proper illumination is recognized by the author as follows: "It is universally admitted that inadequate lighting of industrial establishments affects not only the eyesight and general health of the employees, and the efficiency of their work, but is also responsible for the number and the frequency of accidents. There are, however, as yet, no scientific standards to determine what 'adequate,' 'sufficient' and 'proper' lighting of factories should be."

Arthur Shadwell, writing on "Industrial Efficiency," says: "In the United States I have seen so many mills and other works miserably lighted;" and also, "A bad light is the most conspicuous and general defect of American factory premises."

Speaking of ventilation, the author says: "No attention whatsoever, as a rule, is paid by those who construct factory buildings or by the employers of individual establishments to the subject of ventilation. The opinion seems to prevail that a change of air in the place should come by itself without human aid or mechanical means, and that no special provisions need be made for ventilating industrial establishments. . . . In a large number of shops inspected the air was close, the shops were over-crowded, bad odors were often noticeable, temperatures were frequently high, humidity excessive, dust abundant, and gases and fumes quite oppressive."

The importance of cleanliness, especially in some of the dangerous dusty trades, cannot be too strongly emphasized. Quoting the author, "The worst feature in most of the industrial establishments, however, is the lack of proper supervision of the working force as far as washing facilities are concerned. There is hardly any factory where the washing-up at noon hour or after work is made compulsory, or is supervised by foremen. One of the reasons why plumbism is being eliminated in the Pullman car shops at Pullman, Ill., is the stringent lavatory supervision at the noon hour."

The number of factories providing separate lunch rooms was found to be only 3.8 per cent., and "even in those establishments where poisonous substances, clinging to the hands, directly endanger the life of the workers, a separate lunch room is still the exception to the rule."

The lack of adequate toilet accommodations is another feature of factory life that Americans may well be ashamed of. The location is often inaccessible, the plumbing often obsolete, and in some instances the old fashioned privies and trough closets are used. "In one shoddy mill we found that the owner (a member of the local health board) had neglected to provide any water-closets for his employees. The substitute for proper toilet accommodations was a wooden barrel in a sub-cellar of his establishment."

Medical supervision and instruction and first aid facilities are strongly urged by the author. In not one of the establishments inspected was provision made for proper instruction of workers in the specific dangers of their trade, in the prevention of these dangers, in the care of their persons or in knowledge of the ordinary risks of their daily work.

"A campaign of education is of the first importance for the employers as well as employees."

Occupational Diseases.

The *New York Medical Journal* in a recent number summarizes an article on occupational diseases which appeared in the *Medi-*

cal Record on January 31. It contains very valuable suggestions. We quote as follows:

"W. G. Thompson refers to the principal occupational diseases, to what has been done in this country and England in investigating and avoiding them, and states that in Vienna, Berlin, and nearly a dozen other foreign places there are now museums of safety, where all kinds of devices are exhibited to secure the safety and health of workmen. In Milan there is a hospital of 150 beds, with excellent laboratories and outpatient department, exclusively for treatment of industrial diseases. There seems, he says, a great lack of literature on occupational diseases; he believes that at the present time physicians should collect more accurate data. In his own clinic he uses a special kind of history card for the reporting of industrial diseases. He emphasizes the importance of definite and coöperative investigation; the subject calls for coöperation of economists, philanthropists, physicians and legislators. Suitable legislation, he feels, is bound to come."

An Important Congress.

A committee has been organized for the purpose of inviting the attention of the medical profession and all others interested in the prevention of occupational diseases to the Third International Congress on Diseases of Occupation to be held in Vienna in September, 1914.

Industrial diseases and accidents are everywhere assuming more and more importance and our knowledge should be based upon accurate data. These Congresses, begun in 1906, afford an excellent opportunity to scientists, clinicians and industrial experts to present the results of their research and observations before an international body specially interested in the prevention and treatment of a most important class of diseases.

Among the topics which will be considered at the coming Congress are:

1. The physiology and pathology of fatigue, with special reference to vocational work and to the effects of night work on the nervous system.
2. Work in hot and damp air.
3. Occupational Anthrax.
4. Pneumoconiosis.
5. Injuries caused by electricity.
6. Industrial poisons.
7. Injuries of hearing caused by industrial pursuits.
8. Miscellaneous communications.

All are cordially invited to attend. For membership fees, mail postal money order for $5 to the general secretary of the Congress, Dr. Ludwig Teleky, No. 23, Türkenstrasse IX, Vienna, Austria.

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